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THE BUILDER

A JOURNAL FOR THE ARCHITECT AND CONSTRUCTOR.

WITH WHICH IS INCORPORATED "THE BRITISH ARCHITECT."

VOL. CXXII.—No. 4142 JUNE 23, 1922.

RANGES AND COOKING APPLIANCES.

THE cooking of food must have been one of the earliest of human activities, and, it being among the most practically important and universal necessities of life, our ancestors could hardly have imagined that we would have weighed the stars, signalled "through the æther" from Europe to Australia, learned to fiy, and reached the Poles before we knew what was the most efficient and economical method of cooking food and heating water; yet such is the present state of affairs. While it is distinctly creditable that our thirst for pure knowledge and power over Nature should have outstripped our anxiety to unravel the rather prosaic question of cooking and heating water for domestic use, there is room for both lines of inquiry, and the report of the Fuel Research Board, illustrating tests carried out by Mr. A. H. Barker, is welcome, even though its tendency is rather to make darkness visible and to illustrate how little we have in the past been masters of the subject.

A thorough investigation of this kind bristles with unforeseen difficulites; theory and practice diverge widely, on account of small but important disturbing factors, and the whole problem is rendered almost insoluble by the prejudice of the housewife and the conservatism of the cook. The report has met with hostile criticism from aggrieved readers who want to know definitely what is the most economical way of cooking food and heating water; they want a plain answer to a straight question, and they cannot, even yet, be given real satisfaction. The problem is primarily one that is best dealt with by the manufacturers of ranges working in conjunction with experts who are in a position to carry out experiments on a large scale, and in this respect the reports on the various makes of ranges experimented upon, although not made public, should be of real assistance in showing manufacturers how to overcome defects and how to make improvements. Makers have already effected a great advance in economical working, but the question of the relative economy, for example, of making one fire serve two purposes, as compared with providing two fires, is not one of design but of scientific fact, complicated by numerous ever-varying conditions and by the human factor.

The subject has now come to the fore principally on account of the high price of coal and transport, but these conditions have merely intensified a previously existing trouble—the waste of fuel. The same question has a direct bearing on another of our more serious evils, the smoke nuisance, and, in investigating fuel consumption, we are glad to note that the Board has not overlooked the air-pollution plague. The report states that in so far as a cooking range is suitable for one purpose it is almost of necessity extravagant for others. From this it follows that the ordinary range, which is intended for at least four different purposes, is a Jack-of-all-trades and a master of none. The usual purposes for which a range is required are to heat an oven, to supply hot water, as a hot-plate, and to warm a room. It would theoretically be more economical to provide two or three separate fires to perform the above offices, but we are warned not to assume that such a separation of functions would lead to economy in practical use, and we get the impression, on the whole, that in small houses one fire is preferable to two, and that it should be designed to serve each purpose as efficiently as possible.

Two of the main conclusions reached as the result of physical tests are worthy of special mention: the first is that air should only have access to the fire through the grate bars, and that the fire should therefore be as completely closed as possible; and the second is that in-leakage of air into the flues should be rigorously prevented. A cheerful appearance can be given to a closed fire by inserting a square of mica in the door, and this concession to popular demand serves to abate the prejudice that exists in this country against the closed fire.

Turning to the relative efficiency of different kinds of fuel, we find an interesting and highly-informative account of the processes of combustion undergone by coke and coal, and an insistence that one of the principal objects to be aimed at, in the interests of public health, is the construction of ranges capable of using the lower grades of coke, or alternatively the production of a quality of smokeless fuel which can be used effectively with existing designs. The chief drawback to the use of coke in ranges of ordinary construction is found to be an excessive loss of temperature between the combustion chamber and the flues, due to the in-leakage of cold air, to loss by cold surfaces such as boiler and hot-plate, and by conduction to the cold flue walls surrounding the oven. Bituminous fuel, in producing flames, is enabled to apply its heat at a distance to the combustion chamber, and this is the secret of its peculiar heat efficiency in any but specially designed ranges.

The evolution of the kitchen range has followed the line of a continuous reduction of the amount of air admitted to the fire. In the country parts of Ireland bread is baked and birds are cooked in a large pot suspended over a wood or turf fire, on an open hearth; the pot is converted into an oven by placing hot cinders on a rimmed lid, superb results being obtained with this primitive apparatus. Leaving the open fire, which is obviously unsuited to heating a water supply, and turning again to the report we find that every successive step in the direction of enclosing the fire, and so restricting the admission of surplus air, has resulted in increased economy, and, in the words of the report, "The present experiments have produced a type of range in which the fire is entirely enclosed and very little surplus air admitted. . . . This has resulted in the reduction of the consumption by fifty per cent. or more, and by rendering possible the use of coke to an extent which is wholly impossible with the more ordinary type of range." There is certainly now no reason why anyone inserting a new range should insert an obsolete pattern, and the large increase in efficiency mentioned above will soon be, if it is not already, within the reach of everyone. The difficulty mainly lies in the vast number of old built-in ranges that are still in use; a cheap smokeless fuel that could really take the place of bituminous coal would be a godsend.

The most constructive work on the part of the Board has resulted in the experimental range resulting from the knowledge gained during the course of the investigations. It appears that an experimental device reduced the fuel required for any given duty by seventy per cent., and hopes are expressed that this reduction could be considerably increased by further advances on the same lines. In such highly efficient ranges there is nothing left in the nature of an open fire, and a separate fireplace is provided below the furnace, the contents of the latter being dropped into the fireplace by w thdrawing the fire grate. We do not see why it should not be frankly admitted that an efficient kitchen range cannot effectively warm a room, nor act as an open fire, and it would probably pay to use the fullest efficiency range and to heat the kitchen, when additional heat was really needed, by means of a gas stove, which could also be used for making toast, an operation that is incompatible with fuel economy in the range. When the person who paid for the gas lived in the kitchen, such a system might be ideal, but in other circumstances it would probably lead to waste.

The report is well worth reading and is a sign that the authorities are alive to the importance of research.

NOTES.

The R.I.B.A. Election.

WE referred in our last issue to the result of the R.I.B.A. Council election and voiced the surprise which exists in some quarters, that such a change in personnel should have taken place. That surprise now appears to be giving place to interest in the policy of the new Council, and that can only be inferred from the speeches and letters of members of the Defence League prior to the election. The electorate having, so far as they have voted, rejected, not the detailed scheme of the Unification and Registration Committee of the R.I.B.A., but the principle of Unification as a preliminary to Registration, the new Council will no doubt indicate their policy in the near future, and it will be no easy task to satisfy, not only their own followers and the considerable minority voting, but the still more considerable number who did not vote at all. It is sincerely to be hoped that the new Council will succeed in a task of great difficulty and will be able to cut the Gordian knot which has been tied for us by past circumstances.

The Ministry of "Health."

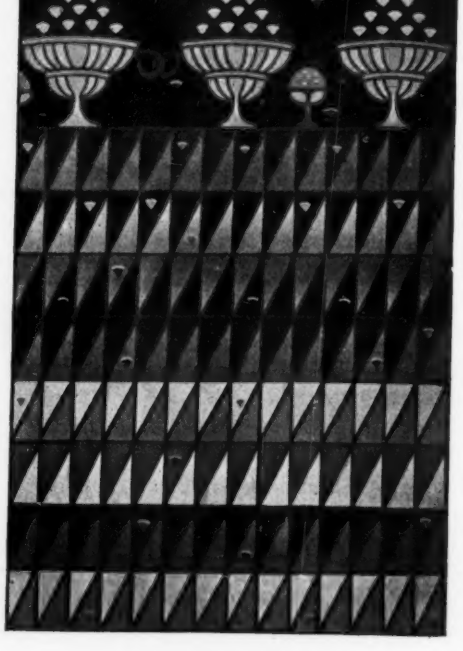
THIS Ministry has always had a few champions who supported its housing policy on the ground that it was setting up a higher standard of housing. We are aware that the standard was at all times perched on a knife edge, but there it was, the only real justification for State interference in a matter that otherwise was far better left in the hands of private enterprise. We take no credit to ourselves for having foretold that, under the new regimé the standard would be ruthlessly abandoned. We hear now, from several quarters, that the pretence of caring for anything beyond cheapness has been relinquished, and that the Government's pledges in this respect have been more or less scrapped; the Ministry of Health has, therefore, forfeited claim to support on the ground of housing betterment. A Government Department bent only on cheapness is in every respect worse than the nineteenth-century speculative builder, and far inferior to the modern builder who, we hope and believe, will make good—when he gets a chance.

Economic Housing.

A WRITER in the *Catholic Herald* says there is no real reason why working-class houses should not be built without further delay or difficulty. It would be good news if true. Let us assume that the private speculator in small house property wants 6 per cent. clear of income tax on his outlay. Is there any reasonable prospect of getting it unless the income tax on small house property (say of 15s. weekly rent and under) were reduced to one shilling in the pound and assessment and property tax removed? Take the case of a detached parlour cottage with three bedrooms, bathroom, living-room, parlour, scullery, larder, &c., which may be built now for £600. Such a cottage does not come within the reach of a man earning £3 a week, and provide a satisfactory return for the owner. Sir A. Mond has just said that we are almost in a market where private enterprise could be taken as on the way to resume its normal position!

Timber Houses.

THE disastrous fire at Long Island, New York, and the destruction of some five hundred timber dwellings, will evoke sympathy in this country, and it should also convey a lesson: that timber houses, or houses with thatched roofs, should only be erected subject to the most stringent safeguards as to isolation. Only in this way can devastating fires be avoided. The Temporary Relaxation of Building By-Laws, issued by the Ministry of Health in 1920, as to the use of thatched roofs, involved a new principle of group isolation, one that might well be extended to cover timber structures. Regulations on these lines, while not preventing the erection of inflammable houses, would certainly preclude such catastrophes as the Long Island fire.



Decorative Panel.
By MR. FRANK BRANGWYN, R.A.

Protection of Cottages.

WHILE we can sympathise with the feelings which lead us to regret the disappearance of the older country and village cottages, which, so we are informed, are being "bought by tradesmen and altered into modern villas," it is doubtful whether there is much to be hoped from the proposal to form an association for their preservation. Mr. Alfred Powell made the announcement of this intention at the meeting of the Society for the Protection of Ancient Buildings, and we share his desire for their better security; but could not existing societies between them, without forming further ones, take such steps as may be possible in such a matter?

The Theatre Exhibition.

THERE is a great deal of freshness and originality to be seen in this exhibition—an article on which appears on p. 948—and it should have a considerable interest for architects, as architectural forms enter so much not only into the building itself but into the stage setting. The artist's work shown in this connection enforces the value to him of having an application for his work within which it can move. It is curious in one way, though in another natural, to see the close connection of so much of the "new" art of recent years with stage requirements. Much of recent work, so raw and inapplicable to the claims of fine art, finds fitness and purpose in its relation to the stage and justifies itself in this connection. The pity is that we should mix up one art with another instead of recognising their separate functions. The minor arts which minister to that which is passing and in a constant state of flux, such as theatrical art and the advertisers, are very different in their nature and requirements to a wall painting in a public building, which is for all time. In such a case a very high responsibility, one that we owe no less to posterity than to ourselves, rests on us to make it really representative in the best sense of the word.

Mural Painting.

How can we inculcate in people's minds the difference between mural painting—an art which, in the best sense of its prerogatives, is the epic form of painting—with the many substitutes now pushing in to intervene against its claims? To mix up poster art or that of scene-painting, and to suppose that they are both one with mural painting, is to find art too easy. The peril to democracy lies in these loose standards, the want of culture and discipline which makes us impatient of anything we do not ourselves understand. It is not our purpose here to offer any criticism of posters or scene painting, in both of which there is plenty to interest us, but to point to the necessity

Vase at Nancy.
Designed by the Architect EMMANUEL HÉRÉ (1705-1763).

[This is a detail of the lay-out scheme planned by Héré for Stanislas, King of Poland and Duke of Lorraine, of which province Nancy was then the chief town and ducal residence].

of the public informing themselves about art, lest a deluge of poster art should be let loose on our public buildings under the guise of mural decoration. It should not be necessary to point out that the ephemeral purpose of the poster does not include in itself the kind of approach which justifies it in assuming to be the same as that of wall-painting, in any way whatever. All the indications which reach us and certain recent instances which have come to our notice point to the alarming prospect of a pseudo-art—more conformable for use in stage decoration or poster art—being elevated into an art of mural decoration. Architects and those responsible for the security of our public buildings will, we hope, withstand this tendency.

The Subject Picture in Art.

IT is not only in England that reaction against the subject picture is in full blast, and if we may judge by the art critics just now, the subject picture is extinct like the dodo. Or if not this, is to be regarded as some survival or rarity, with the same sort of interest for us as an ancient fossil. Thus the pendulum turns, and so far as this view refers to the trivial kind of subject matter and the equally trivial kind of painting connected with work of the kind over the last years, the contempt into which it has fallen need not surprise us, for it reflects a change of temper which is to be greeted rather than condemned. But if we allow our minds to rest in this sort of reaction we may fall into grave error. Nor is such a view the result of a sound critical judgment, but the reaction from an abuse, or misuse of the nature of subject painting. After all, early mediæval art is chiefly concerned with the subject picture only—what a subject and what a temper in the art! When life was more wholly directed by religion, the Church was the chief employer of the artist, and subjects drawn from these sources were the subject matter of art. In its detachment from the essentials of life, no longer related to its deepest experiences, art does not now contain within itself a spiritual equipment able to create for it once more a vital and, therefore, religious subject matter. But this is not to find subject matter negligible, but art the poorer for want of it. When, as we may hope—and the signs are not wanting that justify it—art is once more set in the life of the nation and emerges through it, we shall not lack subject matter or regard it as a survival, because its noblest experiences will be expressed through it.

Imitation Gothic.

IT is surprising that the mere imitation of Gothic forms should be any longer acceptable as containing within themselves anything helpful to religion, the life and civilisation which brought them forth having so long departed. Some remarks made by Mr. Clutton-Brock at the recent meeting of the Society for the Protection of Ancient Buildings may, however, help towards a more enlightened view. He said that "the imitation of the Gothic led nowhere," and that "it was a pity that the clergy encouraged it—probably under the belief that the Gothic style was religious, although it was really a hindrance to the belief in religion." The extensive interests concerned in the production of sham Gothic will not endorse these remarks, but seen outside of the mistaken aims which perpetuate them, they appear no less a hindrance to religion than to art. If the clergy realised this, our churches might become more in touch with life. We are glad when a writer of Mr. Clutton-Brock's reputation makes it clear that, far from its being any help to religion, it is a hindrance. The devotee of Classic Art might of course be told that there is no more evidence of deep conviction or religious belief in the imitation of ancient classic forms than in the copying of Gothic.

A Small House Bureau.

How will architects in this country view the proposals to make their services available for very small houses by giving their plans to some sort of Central or Sectional Bureau, which could thus have the control of a number of good designs and make them available for the public at about one-tenth of the usual cost? As will be seen from our last issue, this is being done in America. If the architect gets some benefit, which in the ordinary way he never could, he might be willing enough. There is no doubt that in small houses people feel even 5 per cent. a heavy additional burden, especially when architects' services are often so lightly valued Perhaps someone will get to work and found A Small House Bureau.

Brangwyn Panels.

MR. FRANK BRANGWYN, R.A., has designed for Messrs. Thomas Parsons & Sons, of Oxford Street, W., two decorative panels each some nine feet high. The panels are distinctly of the modern school and quite unlike anything Mr. Brangwyn has done before. From such an artist they are of interest, but it is not easy to credit them to him, as we are more familiar with his wonderful colour and figure work. It is not clear for what purpose they are designed, but presumably for the decoration of a theatre or hall. The panels are on view at Messrs. Parsons' premises. We illustrate the panels in black-and-white, but this only gives an idea of their form of design. Architects will be interested to know the same firm are preparing a series of panels in what has become known as Lutyens colours, originally introduced and used by Sir Edwin Lutyens on many of his buildings. Special mention may be made of the stipple green. The method of obtaining this pleasant colour is obtained by first painting the door panels white and then stippling with the special green thus producing a pleasant broken surface.

Decorative Panel.
By MR. FRANK BRANGWYN, R.A.

GENERAL NEWS.

Architectural Association Sketch Book.

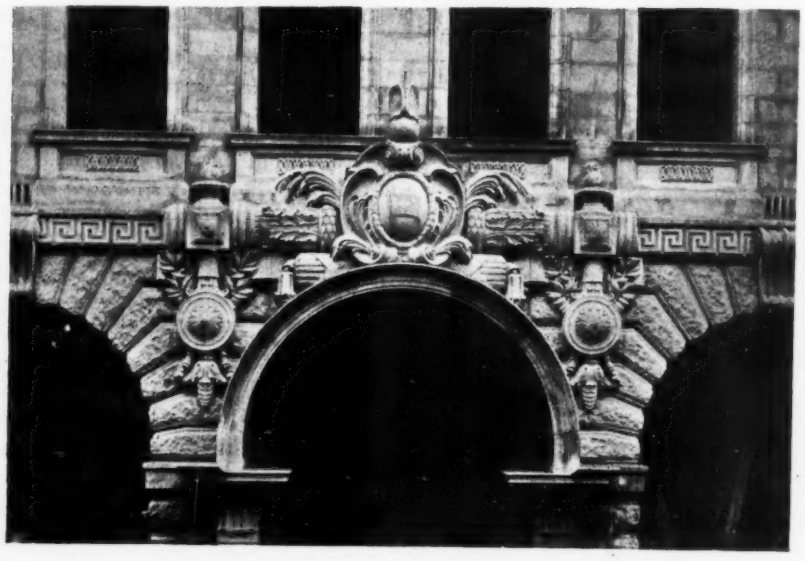
The Architectural Association is recommencing publication of the Sketch Book, which was suspended during the war. Previous to 1914 it had been issued regularly since 1867.

Obituary.

Mr. Hayward James Strudwick, head of the firm of Strudwick & Stephenson, surveyors, practising for over 50 years as J. Hayward Strudwick & Son, died on Tuesday last after a short illness. His work was connected mainly with public buildings, &c. Among these might be mentioned the Houses of Parliament, St. Thomas' Hospital, Burlington House, and Clumber Tower Bridge.

International Congress of Architects.

The 10th International Congress of Architects will be held at Brussels from September 7 to 11 next, on the occasion of the 50th anniversary of the foundation of the "Société Centrale d'Architecture de Belgique." An exhibition of architecture will be opened on September 5 at the Palais d'Egmont. Full particulars can be obtained from M. G. Calumaers, 290, Avenue Louise, Brussels.



New Premises, Fenchurch Street, E.C.: Detail.

The late EDGAR STONES, Architect; MR. E. DOUGLAS SELWAY, A.R.I.B.A., and MR. W. GILBEE SCOTT, F.R.I.B.A., Architects for the completion.

Royal Scottish Academy Exhibition.

Lockerbie War Memorial Competition.

Selected design, by MR. J. B. DUNN, A.R.S.A., F.R.I.B.A.

[This design was selected in open competition, over 100 schemes being submitted. Mr. Geo. Washington Browne, R.S.A., acted as assessor. The memorial is placed in the main street, at the intersection of three separate roads. The pedestal is of Dalbeattie granite, surmounted by a bronze figure of "Victory." On each of the four sides there are bronze panels, three containing the names of the fallen, and the remaining panel being reserved for the dedication. The total height of the memorial is 22 ft. The architect is Mr. Jas. B. Dunn, A.R.S.A., F.R.I.B.A., of Edinburgh, and the sculptor Mr. Henry C. Fehr, of London. The contractors for the granite work were Messrs. Wm. Kirkpatrick, Ltd., Manchester; and for the bronze founding Messrs. J. W. Singer & Sons, Ltd., Frome, Somerset.]

Gifts of Italian Art Treasures.

On Sunday an interesting ceremony took place in the Royal Palace at Milan, consisting of the formal transmission to the Milan Municipality of all the Royal furniture, tapestries, and artistic treasures in the palace, which will be transformed into a museum. The King of Italy made a free gift over a year ago of most of the Royal palaces scattered over Italy and not regularly inhabited, including those at Milan, Monza, and Genoa, and now he has also made over to the local authorities all the art treasures they contain. The Milan Palace has rich tapestries of the seventeenth century, showing the history of Jason and Medea. These adorn three halls, and were executed by Audran, from the cartoons of Detroy. There is furniture by Boulle, with bronze and tortoise-shell decorations. The store-rooms contain a wealth of antiques that would make the fortunes of antiquaries.

Northern Architectural Asssociation.

An enjoyable time was spent on Saturday last by the members of the Northern Architectural Club on the occasion of the annual outing. The party, which was in the charge of Mr. G. E. Charlewood, Secretary of the Club, proceeded from Newcastle to Fountains Abbey by motor coach, where the afternoon was spent in sketching and inspecting the Abbey and the surrounding neighbourhood. Later Martinsfield's Hall was visited, following which the party re-boarded the coach and returned to Newcastle. A number of other interesting outings are to be held during the summer months to places of interest in the Northern counties.

COMPETITION NEWS.

Lytham.

FOR THE URBAN DISTRICT COUNCIL.—Designs and estimates for a public hall and baths. (See advertisement this week.)

Ramsgate.

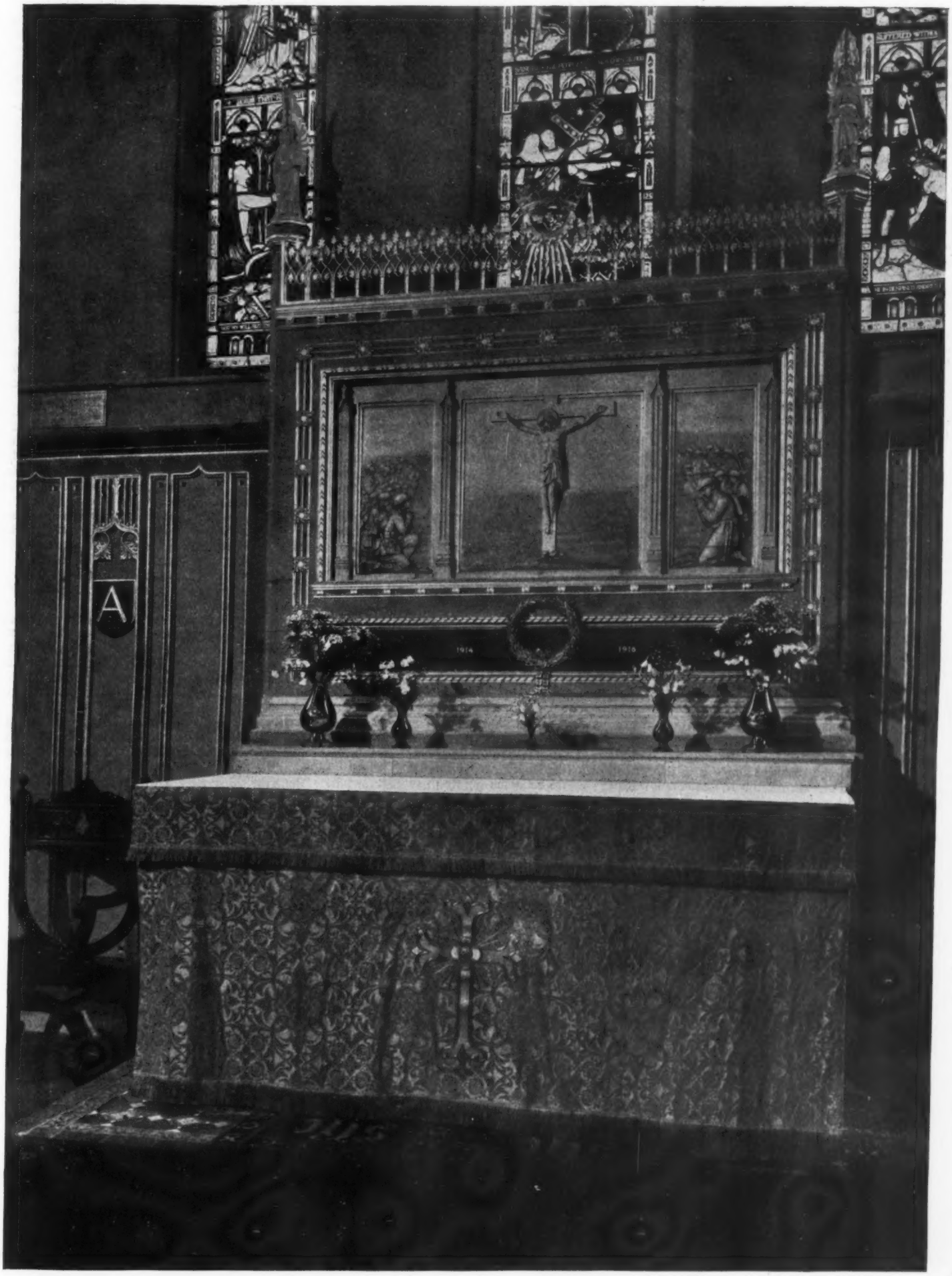
FOR THE BOROUGH COUNCIL.—Designs for the West Cliff Improvement Scheme. Sending-in day, August 10. A copy of the conditions may be seen at *The Builder* office. (See our issue for June 16.)

Southend-on-Sea.

FOR THE EDUCATION COMMITTEE.—Designs for a secondary school. (See our issue for June 16.)

Other Competitions.

Other competitions still open include the following (the dates given are, first the sending-in date, and second the issue of *The Builder* in which full particulars were given):—Auckland war memorial (June 30); R.I.B.A. Poster Competition (July 15, May 5).



War Memorial at Holy Trinity Church, Windsor.

MR. G. GILBERT SCOTT, R.A., Architect.

CORRESPONDENCE.

The R.I.B.A. Elections.

SIR,—It appears possible that the result of the recent elections to the Council of the Institute may be interpreted as a vote in favour of a complete reversal of the policy of the R.I.B.A., and a definite break in the traditions which have, hitherto, been followed. I venture to think that this is not the desire of those of my fellow members who voted for the majority of the new council.

When one's first feelings of surprise and sincere regret (that so large a number of those best qualified to direct the course of architecture as an art have not been re-elected) have given place to a more judicial examination of the situation it would appear that two factors contributed towards it: (1) the indifference on the one hand, and the activity on the other, of the two parties, which one might call the "Coalitionists" and the "Wee Frees" in their preparation for the contest; and (2) a spirit of revolt (which, I think, has long been gaining strength) against the too "exclusive" character of the R.I.B.A. Council, to which the nominations to that body had come rather to be the concern of a small but influential group.

I believe the present small "revolution" may be beneficial in its results if, and *o ly* if, such a universally respected man as our President continues to direct the activities of the Council into wise channels, and, by the exercise of that tact and ingenuity with which he is endowed, refines the rough ore of the new members to form the perfectly tempered instrument which alone can achieve results worthy of our past traditions and present high standing.

P. CART DE LAFONTAINE.

Unification and Registration.

SIR,—I am delighted to see that the seed sown by the Defence League has borne such a good harvest. What remains to be done now is to eliminate the airy theory of Unification and concentrate on practical politics.

I have recently discussed the scheme of the now defunct Council with several Associates, who, like myself, have had to expend much mental effort and hard-earned cash in endeavouring to pass the examinations—a much more formidable undertaking for a Scotsman than for an Englishman or, more particularly, a Londoner as the atmosphere of the conditions of examination has a distinctly southern touch. The view expre sed in these conversations doubtless reflects the opinion of the majority of Associates, in that persistence by the former Council in its mistaken policy would have spelt revolution in the R.I.B.A., with the consequent rise of another detached body of architects.

"A.R.I.B.A. (Scotland)."

Architects' Fees.

SIR,—I wish to draw attention to the great delay on the part of councils in the payment of fees due for services rendered in connection with housing schemes. I have worked for one council for over three years, preparing (at their insistent request) over 40 designs and 18 bills of quantities, and, so far, though my account has been rendered over nine months, I have received nothing. I am wondering if such treatment is general, and what the Institute is doing in the matter.

"COUNTRYMAN."

Sculpture on Buildings.

SIR,—Mr. Woodward's dictum that the outside of buildings is not the place for sculpture, cannot be allowed to pass without comment. Already a section of the public seems to have been persuaded that in monumental art, where one would have thought sculpture was paramount, a mass of masonry is better; at least, one recent competition, where there is ample money for sculpture if the scheme is not too ambitious, has ruled it out as anything but secondary.

After this, it is conceivable that the general public who have not the history of art at their finger-ends may accept Mr. Woodward's extraordinary theory. He seems to have forgotten that the men who built the Parthenon, or Reims Cathedral—to mention only two typical examples of the two greatest schools of architecture—thought otherwise; nor was it different with the masters of the Renaissance, whether Italian, French or Spanish, and even our own St. Paul's has its external sculpture. It would, I think, be difficult to find a school of architecture which has not employed external sculpture except where religious bigotry has excluded it.

It is a commonplace that many sculptors do not understand architectural work, and many architects do not know how to use sculpture, but this does not apply to the City Hall at Cardiff, or the Wesleyan Hall at Westminster, at least, not in my opinion. What is wanted is a more sympathetic understanding between architects and sculptors, and such buildings as those mentioned tend to create that understanding. It is true they are too ornate for a puritan taste—and Mr. Woodward has a right to his own likings—but to state that all external sculpture is out of place, is to say that all architecture has been wrong from the beginning.

CLEMENT W. JEWITT.

London.

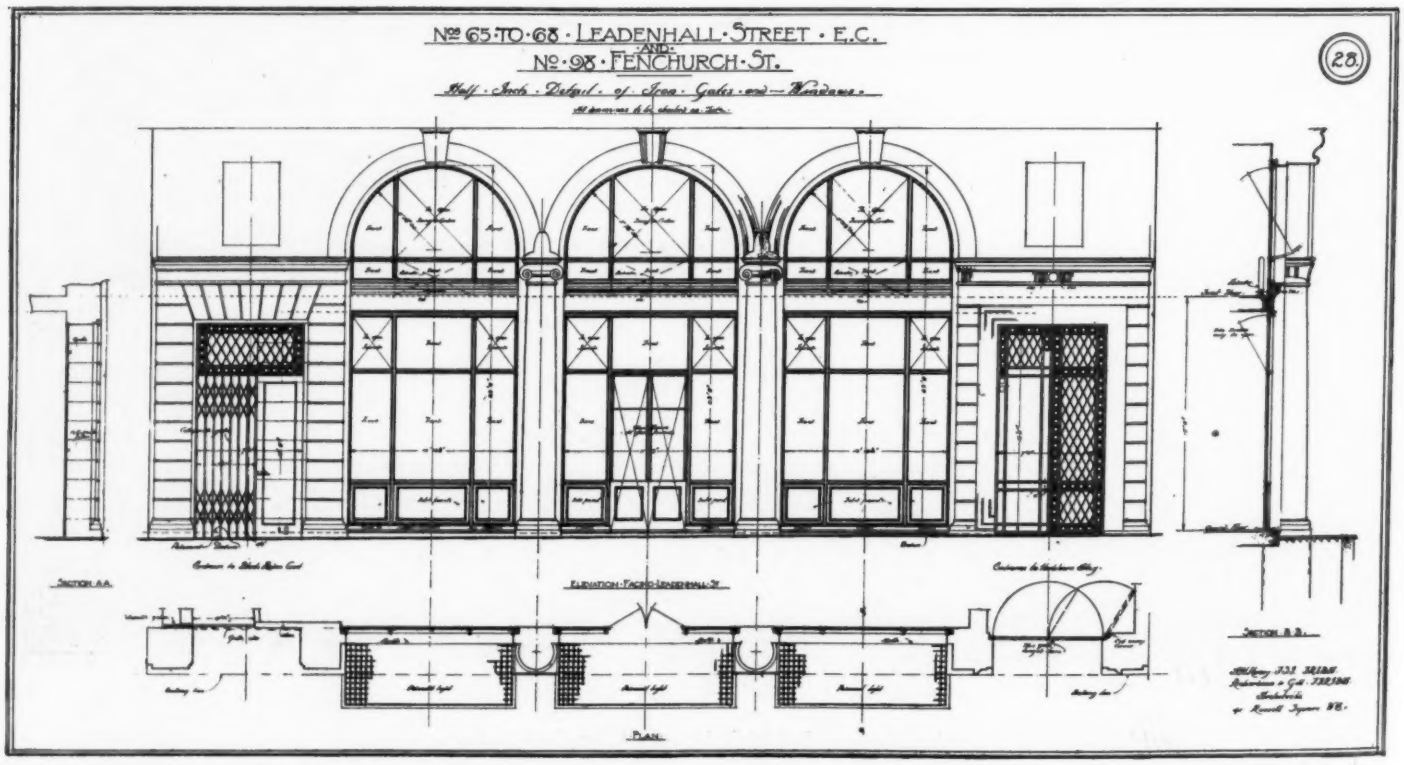
SIR,—I read Mr. Wm. Woodward's letter in your issue of the 16th inst. with some considerable interest, and, so far as his remarks upon acoustics are concerned, with appreciation; but when he leaves the domains of science and ventures to intrude upon more sacred ground, I, for one, refuse to follow him. He says sculpture "*must be in the right place, and that is certainly not on the outside of buildings*" (*!!!*). The architecture of Cardiff City Hall "*would be considerably improved if the whole of it* (the sculpture) *were hacked off*" (again!!!).

Sir, our greatest architect was Oliver Cromwell! I was brought up in the belief that architecture was the Mother of the Arts, and, whilst realising that our British climate was not particularly favourable to the said lady's progeny, I did think that her curly-headed youngster was the hardiest of the lot!

We may not live in a golden age, but, judging by the many recent illustrations poured forth from the offices of *The Builder*, we are about to enter a "Bronze Age," which will result in a freshening up of Mother Architecture, and a freer and more graceful garb than she wore even on her greatest Georgian era.

Critics may say "Yes! Bronze is all right, but our English climate won't permit of stone—especially in our towns." Honestly, weren't we architects rather afraid of sculpture until Rickards gave us a notion or two? We respected it, but didn't quite know how to control it?

I can't say if white-washing our public and emblematic characters would be as successful in effigy as it often is in life; but having occasion to dig up the "oldest inhabitant" of a Somersetshire village to get some information about the drains (!) of an old Georgian mansion,



MR. A. H. KERSEY, F.S.I., F.R.I.B.A., and MESSRS. RICHARDSON & GILL, FF.R.I.B.A., Architects. (*See pp.* 937 *and* 940.)

I made a remark to him about the wonderful preservation of some of the external features, carving, &c., in the oolite stone work.

My prehistoric friend put it down to the fact that up to some fifty years previously (when he was engaged upon the estate) the house was frequently white-washed from "top to bottom."

Bristol. J. H. H.

Why "A Palace of the Arts."

SIR,—Your Note on the "Palace of Arts" in your issue for June 9 is interesting and suggestive. I am not satisfied, either, with the name of "Palace" for the central building for all the arts put forward so eloquently by Mr. J. C. Lewis Hind, and supported by the Faculty of Arts. Some members of the Council would rather call it a "Temple to the Arts."

We want to retain the feeling of reverence for fine things of the spirit, on the one hand, and to have experimental laboratories as well as studios, and a library (circulating) of both books, reproductions, and even of works of art. We want a research department, too; and we want this central place to be one to which all regions of our own islands can come, as well as all parts of our commonwealth of nations.

So far, this building will house a regional and national, and even imperial federation of the related arts and their societies.

But as the idea is to form a centre for a union of the art world, it will naturally stretch beyond the limits of our own flag and will be international and inter-racial. New York is contemplating an international university of all the arts, and it is something in the nature of such a university that we want to establish in London, with its chair of "Æsthetics and the Science of Art." At the same time, we do think of the other side of the question—of the re-organising of the business side of the matter, so that less chaos shall prevail in the art market, and also to make a suitable centre for the selling of all that is best in all the arts (no matter what the style so long as it be good of its kind).

Into the latter part of our idea falls your suggestion for an Art Industries Fair in London, similar in a way to the bi-annual exhibition in Venice. It has always been in my mind to create such a thing for London every alternate year, when it is not going on in Venice. This is good for all trade and stimulates all industries as well as those related to the arts.

But you will see that a combination of university and market—or of work-place and market-place—must have a very special name. If it is not a palace and not a temple, then what is it? I have a name in the back of my mind, but anyone who has suggestions to offer will be welcomed.

I may add that a portion of the building will be devoted to architecture and the public will be encouraged to see models of all good buildings being built or newly set up.

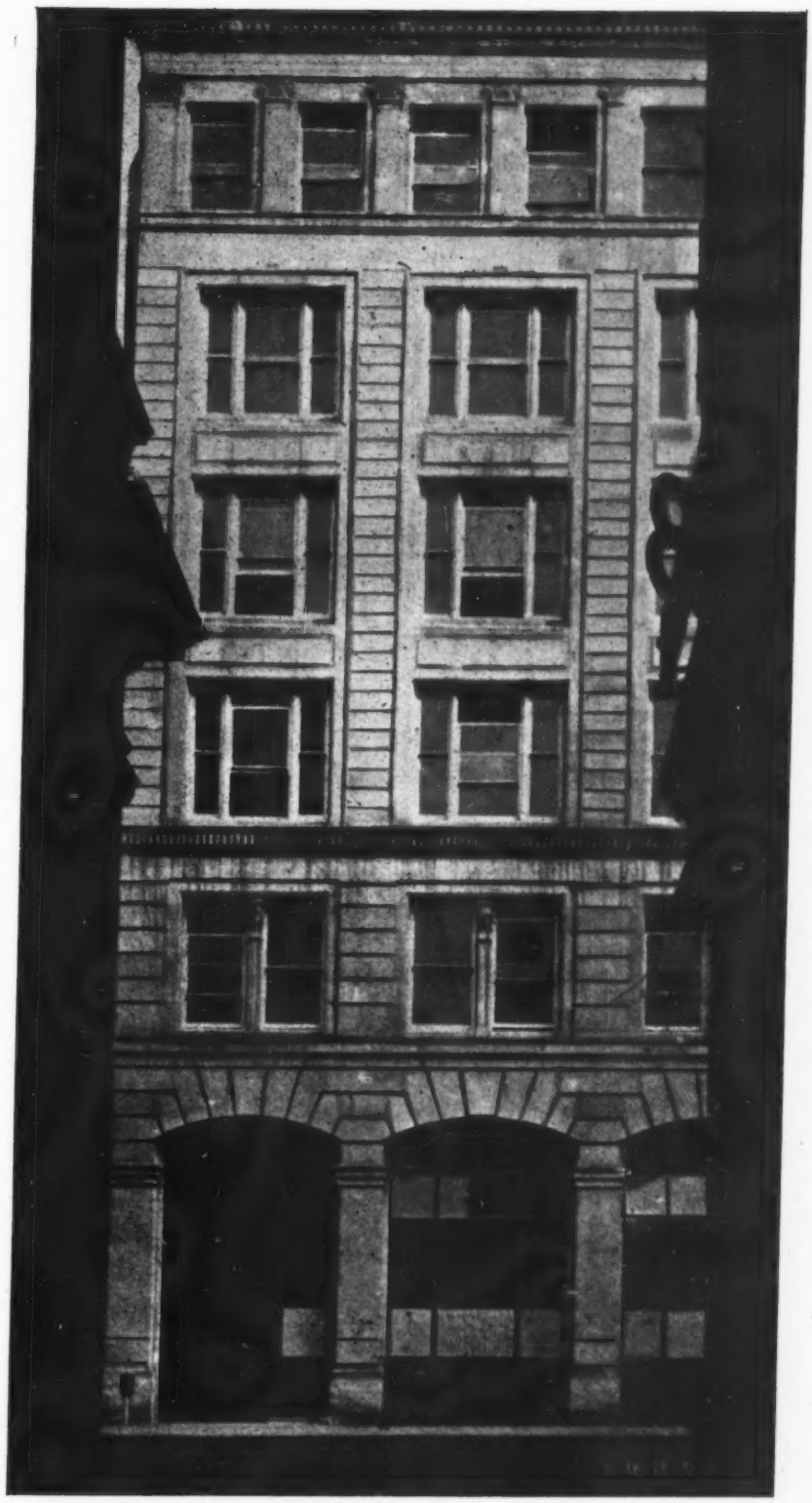
Will architects send along ideas for the name of this universal market-place and work-place of the related arts?

London. AMELIA DEFRIES.

"White Elephants."

SIR,—I have read the letter on the above subject in your issue for June 9, where Mr. A. E. Exeter implies that the well-known "Jezreels' Tower" at Gillingham is a reinforced concrete building, whereas it is actually of brick, and could have been pulled down quite easily by any firm possessing the requisite experience and appliances. The reference to this long-derelict structure, however, is merely preliminary to an altogether gratuitous and unjustifiable attack upon reinforced concrete construction, the "visions" which the writer of the letter has "conjured up" being altogether illusory. In the first place, there is no reason for supposing that fanatical religious sects will ever convert London into a city of derelict "temples," and no reasonable person can regard as "concrete apologies for buildings" such examples of reinforced concrete construction as the New General Post Office, Newgate-street; H.M. Stationery Offices, Stamford-street; the Y.M.C.A Headquarters, Tottenham Court-road, and the Royal Liver Building, Liverpool. In the second place, your correspondent suggests that these, and other reinforced concrete buildings, must sooner or later be demolished, owing to damage by fire or explosions, or by becoming obsolete, being apparently ignorant of the fact that the form of construction he is so anxious to condemn is practically immune from injury by fire and is capable of withstanding unharmed, shocks which would inevitably ruin buildings of ordinary construction. As to the purely imaginary risk of obsolescence, it is scarcely necessary to say more than to mention the fact that buildings in London are rarely, if ever, demolished for this reason, the governing factor being almost invariably their dangerous condition owing to gradual decay, a disadvantage from which reinforced concrete is fortunately immune. It may be added, however, that the new County Hall of the London County Council has been designed and constructed for an effective life of 500 years, a fact which suffices to show that the ephemeral existence apparently favoured by your correspondent is not contemplated by architects and authorities responsible for the erection of important buildings. Permanence and durability are evidently qualities for which your correspondent has a supreme contempt, if one may judge from his letter.

Wimbledon. P. W. W. POPE.



No. 98, Fenchurch Street, E.C.: Detail of Facade.

Excavations at Cirencester.

SIR,—In your issue for June 9, you described the pavings, but you omitted to mention that the cost of this has been assisted by a grant covering more than half the expenses from the Bristol and Gloucestershire Archæological Society. LEO BARNARD,

Honorary Secretary Excavation Committee.

Bristol and Gloucester Archæological Society, Cheltenham.

Other Letters.

Letters are also given on p. 951.

ARCHITECTURE AND SCULPTURE AT THE ROYAL SCOTTISH ACADEMY.

ARCHITECTURE, more than any other art, should provide the historian with references and authentic evidence of the great events of any period. History can tell us of the greatness of Greece and Rome, but without the visible evidence of their glorious architectural remains how poorly might we esteem their power and civilisation. It will be difficult, indeed, for the future historian to tell of the great position occupied by our country at this time if he is to rely for confirmation on the evidence of her contemporary architectural monuments. We have been the dominant element in winning the greatest victory of all time, and the only permanent memorials of the fact are insignificant in scale or tawdry in character. Dozens of memorials have been erected at costs varying from hundreds to thousands of pounds, and yet, nationally, we have nothing whatever to show.

A reflection such as this comes once again to us as we survey the architectural exhibits displayed at the 96th Annual Exhibition of the Royal Scottish Academy. These can, for the purpose of criticism, be divided into three sections—a collection of war memorial designs, an inadequate record of a great Scottish architect's life work, and a scanty show of current building work representative more of British than Scottish effort. A cynic might say that it is a typical Scottish exhibition in that it probably conceals rather than shows what Scottish architects are doing. We can scarcely believe, even in these dull times, that the total Scottish architectural output of the year—other than memorial—is fairly represented by the half-dozen works contributed by Scottish architects. Do some of the contributors to the Scottish Academy suffer from a form of artistic snobbishness which prevents them from showing the cinemas, factories, and other commercial projects they are presumably engaged on in the intervals of indulging in the unremunerative delights of memorial designing?

The comparatively large number of memorial designs on view would lead us to believe that architects regard the production of these tributes to the dead to be of more vital artistic interest than the solution of problems affecting the needs and well-being of the living. An English architect has sent a sketch study for a modern fish shop. It may not be the ideal of such an establishment, but, in our opinion, it is as much, possibly more, worthy of inclusion in an architectural exhibition than many of the edifices complacently labelled cenotaphs, and often compounded of incongruous elements brought to what is considered the right degree of enrichment with illogical mouldings and ornament. We think it is a pity that architects themselves should encourage the public taste for the trivial and unessential by preferring to display works of almost entirely sentimental interest in preference to those affecting the constructive needs of the day.

Our strictures on memorial work and the general national position and attitude towards such unique opportunities for real monumental effort are, of course, general, and not personal to the architects displaying work at the Academy. As a matter of fact, many of the examples shown there are, within the limits of their opportunity, delightful and satisfying works of art. For example, Sir Robert Lorimer's simple and vigorous accepted scheme for Paisley, together with his other sketches, are as good as one could wish. Other designs for the Paisley memorial, by Mr. Tarbolton and Messrs. Begg & Lorne Campbell, are interesting for comparison with the successful competitor's scheme. Works calling for special mention are Mr. Morris's Prestwick memorial, Mr. Paterson's village crosses, and Mr. Dunn's vigorous sketches for various cenotaphs. Mr. McKay Stoddart's wall panels are good examples of this type of monument, while Mr. Tarbolton's memorial chapel at St. Paul's, Edinburgh, and oak screen at St. John's, Greenock, are admirable ecclesiastical interior works. Others showing good work are Mr. Kinross and Mr. Davidson.

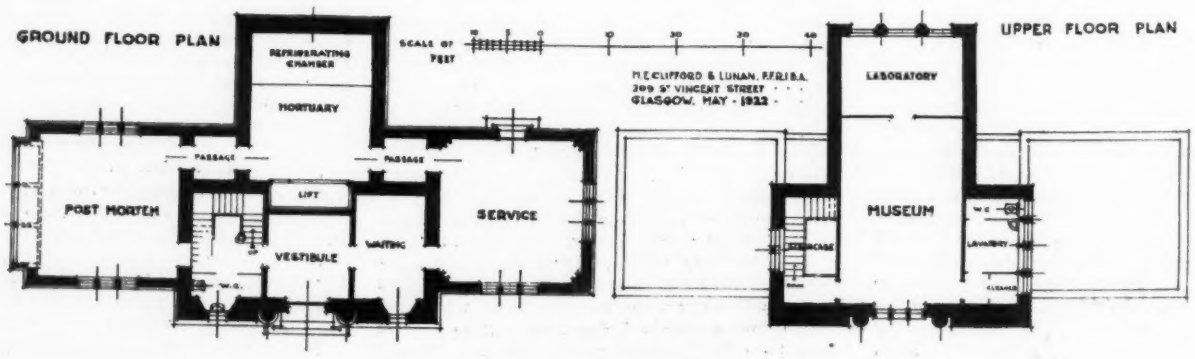
One whole wall of the architectural gallery is taken up with the exhibition of works by the late Sir Robert Rowand Anderson. The drawings and photographs shown, interesting as they are, but poorly represent the variety, volume, and refined charm of Anderson's executed works. Combined with his great powers as a creative artist he had a power of assimilation and sympathetic self-suppression that enabled him to do restoration and addition work of unrivalled quality. His work at Dunblane Cathedral is probably as fine as any church restoration that has been done. The fine qualities and rapid development of modern American architecture are often ascribed to the genius of a few great pioneers, who boldly took European masterpieces as their *motifs*, and reproduced them with such modifications as made them suited to modern convenience. Something of the same sort was done very successfully by Anderson in many of his works, and the result is a sense of scale and monumental grandeur even in his comparatively minor buildings. His flexible knowledge and appreciation of detail and material cannot be fully understood from illustrations, and his works are worthy of intimate study for these qualities alone. The most important buildings shown are the Edinburgh University extensions, comprising the McEwan Hall and the Medical School. They are in a style of Early Renaissance which is no longer popular, but which their author made peculiarly his own and used with consummate mastery. The drawing of Mount Stewart House is a poor one, but the work in this monumental dwelling is only less marvellous than the fact that an architect should get a client like the late Marquis of Bute willing to pay for such an architectural fantasy. The Scottish National Portrait Gallery is a building of Classical essentials clothed in Gothic detail. It is interesting, but, in our opinion, not so characteristic of Anderson's work as buildings like the Pierce Memorial Institute at Govan. This is a comparatively small but delightful structure of vernacular Renaissance detail, executed in grey sandstone and notable for subtle charm of grouping and detail.

A number of memorials executed by Anderson are specially interesting at this time in comparison with the war memorials shown. We think it will be agreed that Anderson's work more than holds its own. He shows how to be refined and fanciful without being thin and vulgar, and how to exercise restraint without being commonplace. Scotland has produced a number of very notable architects, but Anderson's position amongst them is almost unique in that, unlike most of the others, he found abundant opportunity in, and confined his practice principally to, the land of his birth.

Of the limited number of building projects shown by Scottish architects the most considerable is the extension to business premises, Bath-street, Glasgow, by Messrs. Keppie & Henderson (see p. 946). An admirable pen-and-ink drawing gives an effective rendering of a simple but vigorously handled façade, with an obviously structural steel front lightly clothed with stone and framed in with solid flanking pieces and an attic story. The smaller scale of the side windows is an effective foil to the large central openings, and enables the building to blend into the adjoining structures without undue abruptness. It is a pity that the commercial requirements apparently do not admit of more generous support from the street level. Messrs. Clifford & Lunan's Mortuary Building, Victoria Infirmary, Glasgow, is a nicely-balanced Classical structure. It is almost unexpectedly architectural for its purpose, the common practice being to tuck such a necessary adjunct away in an obscure position where it may be ignored in the general architectural scheme.

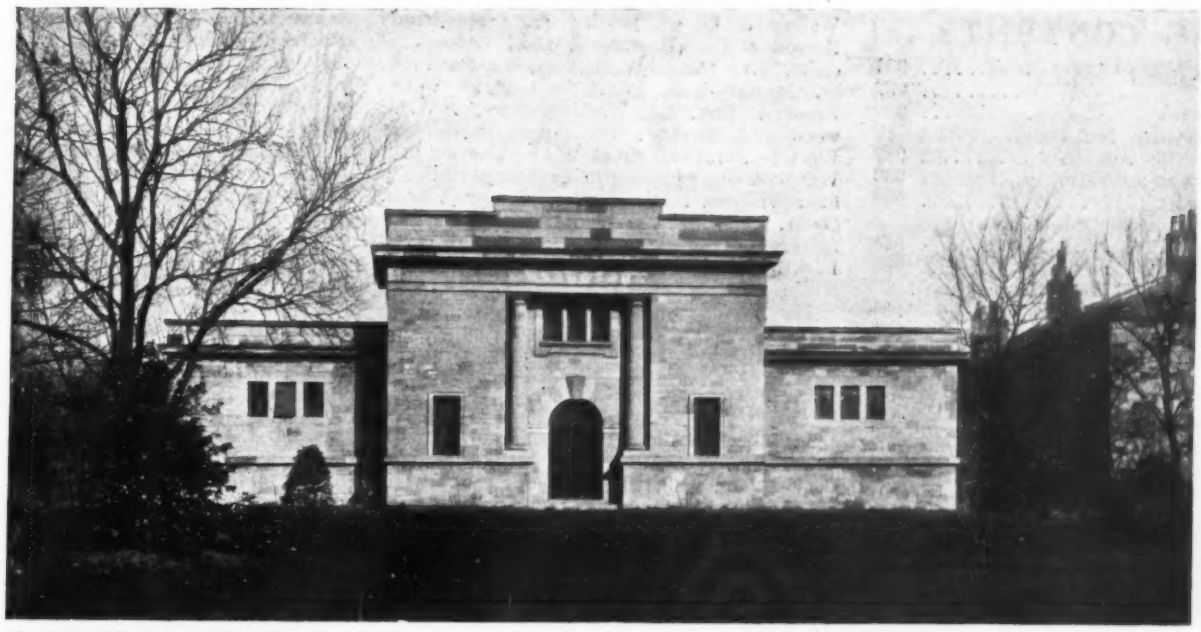
Mr. Reginald Fairley's Church at Rothesay is illustrated by means of scale drawings. It is a comparatively small structure of primitive Romanesque detail. Mr. McLachlan's additions to Belford House are excellently detailed and blend successfully with the original work. The memorial cottage at Colinton by Messrs. Begg & Lorne Campbell is a nicely-composed structure, while Mr. Blanc's interior of dining-room for Marine Hotel, Gullane, shows an effective interior, perhaps somewhat low in proportion. Mr. Mears shows two interesting projects, one for an Indian shrine having a large saucer dome and with apsidal projections. The other drawing shows a general view of the proposed University, Jerusalem. It is not possible to gather from the drawing more than a general silhouette of the buildings.

Several distinguished English architects have sent examples of their work. Most of



Glasgow Victoria Infirmary Mortuary Block.

MESSRS. H. E. CLIFFORD & LUNAN, FF.R.I.B.A., Architects.



Royal Scottish Academy Exhibition.

Glasgow Victoria Infirmary Mortuary Block.

MESSRS. H. E. CLIFFORD & LUNAN, FF.R.I.B.A., Architects.

them, we fancy, have previously been shown in the Royal Academy and will be familiar to our readers. The drawing by Mr. Bradshaw of Sir Aston Webb's design for the Bank of Chile, Santiago, is one of the brightest and most effective water-colour perspectives we have seen. Mr. Bradshaw also illustrates Mr. De Soisson's factory at Welwyn Garden City. Both these schemes are conceived in a fine architectural spirit well related to their purpose. Messrs. Ernest Newton & Son & Mr. W. Nicholls are represented by views of a French monastery shown in an interesting manner by boldly coloured views. Mr. Beveridge shows how to deal architecturally with an engineering problem. Mr. Tapper's Australian Grammar School is an interesting group suggestive rather of a preliminary sketch than a complete scheme. Mr. Vincent Harris and Messrs. Henry Hare & Bertram Lisle are also represented by good work.

There are a number of exhibits of stained glass, but these are mostly only of moderate quality. We would except No. 551, the east window, St. Stephen's Church, Portsmouth, by Mr. Martin Travers, and No. 552, east window, Church of the Annunciation, Bryanston-street, London, by Mr. J. C. Bewsey, which are finely conceived subjects well harmonised with the architectural framework.

The sculpture section of the Scottish Academy has in some recent years been a remarkably strong one, particularly in Continental work, and we are this year comparatively disappointed. There are no commanding works and nothing illustrative of what might be termed modern tendencies. The best things shown are by men of established academic reputation, such as Dr. McGillivray, whose bust of Mr. Skeoch Cumming is a powerful work. Sir George Frampton's "La Belle Dame Sans Merci" is a charming bronze, while Mr. Hartwell contributes one or two good busts. Mr. Reid Dick is represented by small works, excellent in quality, while Mr. Percy Portsmouth has a fine marble bust of the late Lord Glenconnor. Of the younger men, Mr. Benno Schotz is an artist of whom great things may be expected. His work has distinct quality and originality. Mr. Proudfoot, Mr. Gamley, Mr. Carrick, and Mr. Paulin are represented, but not by anything calling for special note. Mr. Taubman has a very striking sketch for a monument, entitled "The Steps of Life." It is original in conception, ingenious in certain of its details, but far too restless and rococo in general massing to satisfy as a work of art.

ARCHITECTURE AT SHEFFIELD UNIVERSITY.

References to the good results which have followed the inclusion of the department of architecture in the Sheffield University Faculty of Art were made on Monday last at the opening of the annual exhibition of students' drawings. Notable successes have been obtained by the department during the past twelve months. In the Intermediate R.I.B.A. examination for 1921 the fifth place in order of merit in the United Kingdom was gained by Mr. C. C. G. Osborne, and the eleventh place by Mr. H. Fieldsend. In the Society of Architects' Membership Examination the first place for the best standard of the year was awarded to Mr. E. W. Winks, and Mr. C. C. G. Osborne passed with special award of merit (third in the United Kingdom). During the year 108 sheets of testimonies had been accepted by the R.I.B.A. and only four rejected. The average for the whole of the country is about 60 per cent. rejected.

SIR HENRY HADOW, Vice-Chancellor of Sheffield University, presided at Monday's opening ceremony. Architecture, he said, was one of the most interesting of the arts because it raised so many problems promoting discussion, as, for instance, the question of art and utility. It was especially suitable, he thought, that an architectural department should function in a University. Co-operative work with the other artistic and scientific professions could be better obtained by the combined activities of a University than they could anywhere else. The drawings hung on the walls indicated the progressive character of the work that was being carried on by the department. They dealt with a variety of topics and there were no signs of vacillation or uncertainty about the drawings.

MR. J. C. PROCTOR, M.C., A.R.I.B.A., President of the Leeds and Yorkshire Architectural Society, declared the exhibition open, and, in doing so, gave some excellent advice to young architects. He was particularly interested in the remarks of Sir Henry Hadow about Universities having a department of architecture. In Leeds this was under the education authority, and they had none of the advantages which followed association with a University. The teaching of architecture in Leeds was run on more commercial lines. Architecture had often been called the Mistress Art, but of all the arts it was the one least understood by the general public. The advantage of attending a school of architecture was that the student could do all sorts of things that he would never be able to do in private practice. There, the practical side killed a student's imagination from the very start, as was the case under the old-fashioned method of pupilage. Mr. Proctor suggested that wherever architects could awaken the interest of the general public in their work they should do so. If their art was not understood they must blame themselves to a large extent, and the remedy lay in their own hands. Every practical architect should carry on propaganda work for his art and should talk "shop" on every possible occasion. Years ago architecture had its patrons, and this ought to be the case at the present time. With regard to the fitness for the profession of many students of architecture, Mr. Proctor said he had seen a good deal of the training of architects since the war, and had felt more than once that a good many people were going in for architecture as a profession who were not fitted for it. By the encouragement of Government grants, men who were in other professions or trades before the war had taken up architecture as a profession, which seemed to him rather an impossible thing to do. Up to a certain point, a man had to be born an architect, and he could not become a real success just by accepting a Government grant. He had no desire to discourage students, but he did feel that in their profession there were a good many square pegs in round holes. It was well for the student to remember that his first drawing for actual execution was also his first definite contribution to history. Concluding his remarks, Mr. Proctor suggested that architects should pay more attention to internal decorations.

A resolution of thanks to Mr. Proctor was carried on the motion of MR. J. R. WIGFULL, seconded by MAJOR C. B. FLOCKTON.

MEETINGS.

SATURDAY, *June* 24.

Architectural Association.—Visit to Rushymead.

MONDAY, *June* 26.

Royal Institute of British Architects.—Presentation of the Royal Gold Medal to Mr. Thomas Hastings. At 9, Conduit-street, W.1. 8.30 p.m.

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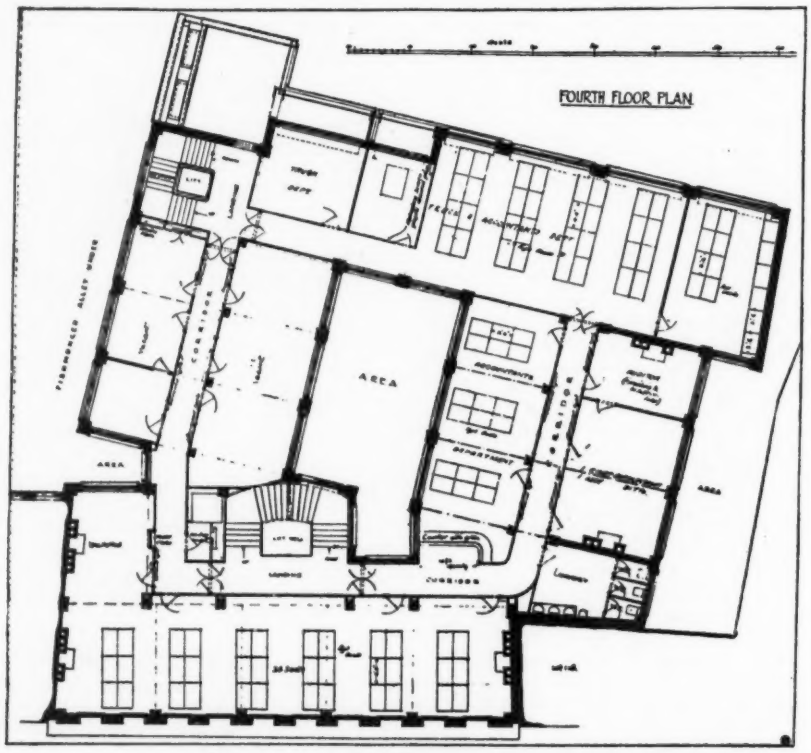
ILLUSTRATIONS.

Premises in Leadenhall-street and Fenchurch-street.

The buildings are faced with Portland stone supplied by the Bath & Portland Stone Firms, Ltd. One of the chief difficulties of the site was the incorporation of Black Raven-court and the shifting of the position of the public thoroughfare through from Fenchurch-street to Leadenhall-street to the west side of the building.

The main contract was carried out by Messrs. W. H. Lorden & Son, of Upper Tooting, and the following sub-contractors were engaged on the work:—Stonework: Bath & Portland Stone Firms; sanitary fittings: Doulton & Co., Ltd.; asphalte work: T. Faldo & Co.; leaded lights: British Luxfer Prism Syndicate; steel work: Redpath, Brown & Co.; pavement lights: J. A. King & Co.; plaster decorations: H E. Gaze, Ltd., 14–16, Euston-buildings, N.W.1; hardwood: Ashby & Horner; electrical work: Middleton; marble work: Chas. Walker & Co.; heating and ventilating: Russell & Co. (Engineers), Ltd., Lancashire-court, W.1; tiling: W. B. Simpson & Sons, 100, St. Martin's-lane, W.C.2; terrazzo work: Brookes, Ltd., 65, Victoria-street, S.W.1.; wood block flooring: Decorative Tile & Wood Block Co., 81, Dean-street, W.1; passenger lift: Waygood-Otis; goods lift: Pickerings; kitchen fittings: Jas. Slater & Co. (Engineers), Ltd., 50–51, Wells-street, W.1. Pannelling and other fittings; Green & Abbot; stone carving: Mr. P. S. Bentham; lift enclosure: George Wright & Co.

The architects are Mr. A. H. Kersey, F.R.I.B.A., and Messrs. Richardson & Gill, FF.R.I.B.A.



New Premises, Fenchurch Street, E.C.

The late EDGAR STONES, Architect; MR. E. DOUGLAS SELWAY, A.R.I.B.A., and MR. W. GILLBEE SCOTT, F.R.I.B.A., Architect for the completion.

"Cory Buildings," Fenchurch-street, E.C.

This office building, which is now nearing completion, is being erected for Messrs. Wm. Cory & Son, Ltd., who will occupy the whole of the basement, ground, first, fourth and sixth floors. It is on the site so long occupied by Ironmongers' Hall, which has had to give way to the needs of modern development.

The building was designed and commenced by the late Mr. Edgar Stones. At his death, in September, 1921, Mr. E. Douglas Selway, A.R.I.B.A., was appointed architect, with Mr. W. Gillbee Scott as consulting architect. Mr. Selway, in consequence of a complete breakdown in health in February last, resigned his appointment, when the work was placed solely in the hands of Mr. Gillbee Scott to complete.

The foundations and basement were executed by Messrs. Holloway Bros. and the superstructure is now being erected by Messrs. P. & W. Anderson, of London and Glasgow.

The building is of steel frame construction, for which Messrs. Whitaker Hall & Owen acted as consulting engineers, the work being executed by Messrs. E. C. & J. Keay, of Birmingham. The floors, roofs, and staircases are of reinforced concrete constructed by the Fawcett Construction Co. The roofs are covered with Westmorland green slates and asphalte. The front to Fenchurch-street, and part of that to Fishmonger Alley, are in Portland tsone, and all other external walls are faced with white glazed bricks.

The treads, risers, and strings of the staircases are in marble, and also the walls of the entrance hall, the main staircase up to the ground floor, those of the general office, and the first floor corridors. The entrance hall is paved with marble, and the corridors with marble mosaic and terrazzo. The floors of the offices throughout are in North American oak.

The board room has walnut panelling by Messrs. Waring & Gillow. All other joinery on the ground and first floors, including wall panellings, is in Spanish mahogany, and is being executed by Messrs. Samuel Elliott & Sons, of Reading. The remaining joinery throughout is in Honduras mahogany.

The ornamental iron window frames in the front, and the bronze entrance doors, are by Messrs. Hart, Son, Peard & Co. The iron dome over the general office, the wrought iron enclosures to lifts, the balustrading to the galleries of the general office and elsewhere, wrought iron railings, and bronze grilles to the radiators, are by Messrs. H. W. Cashmore & Co.

The stone carving, and the fibrous plaster ceilings and cornices have been executed by Messrs. E. J. and A. T. Bradford.

G.P.O. telephones and "Relay" automatic intercommunicating telephones will be fitted in every room in the building, and also electric clocks synchronised from Greenwich. The building has its own water supply from a well sunk to a depth of about 450 feet by Messrs. C. Isler & Co.

The following firms are supplying other finishings —Lifts by Messrs. Waygood-Otis, Ltd.; electric lighting by Electrical Installations Ltd.; electric light fittings by Edison Swan Electric Co., the General Electric Co., and, for the board room, carved walnut fittings by Messrs. Waring & Gillow; automatic telephones by the Relay Automatic Telephone Co., and electric clocks by the Synchronome Co.; oak floors by Messrs. Hollis Bros.; marble work by Messrs. Fenning & Co.; mosaic and terrazzo pavings by Art Pavements & Decorations, Ltd.; ironmongery by Messrs. James Gibbons, Ltd.; low-pressure heating by Messrs. Rosser & Russell, Ltd.; tile dados to staircases and walls of corridors, lavatories, and w.c.'s by Messrs. C. W. Williams & Co.; lead light glazing by Luxfer Prism Co. and Mr. Wm. Smith; and electro-copper fire-resisting glazing by Messrs. Joseph Chater & Sons; Messrs. Young & Brown were the quantity surveyors, and Mr. J. G. Peacock was the clerk of works.

The portion of the building to be occupied by Messrs. Wm. Cory & Son is being furnished throughout by Messrs. Waring & Gillow, much of the furniture being specially designed.

Architecture at the Scottish Academy.

We also illustrate extensions to premises of Messrs. Pettigrew & Stephens, Ltd., by Messrs. Keppie & Henderson (p. 946), and Glasgow Victoria Infirmary Mortuary Block, by Messrs. H. E. Clifford & Lunan, FF.R.I.B.A. (p. 939).

The selected design for the Lockerbie War Memorial competition by Mr. J. B. Dunn, A.R.S.A., F.R.I.B.A., is also illustrated on page 934.

BRITISH EXHIBITS AT THE SALON DES ARTISTES FRANCAIS.

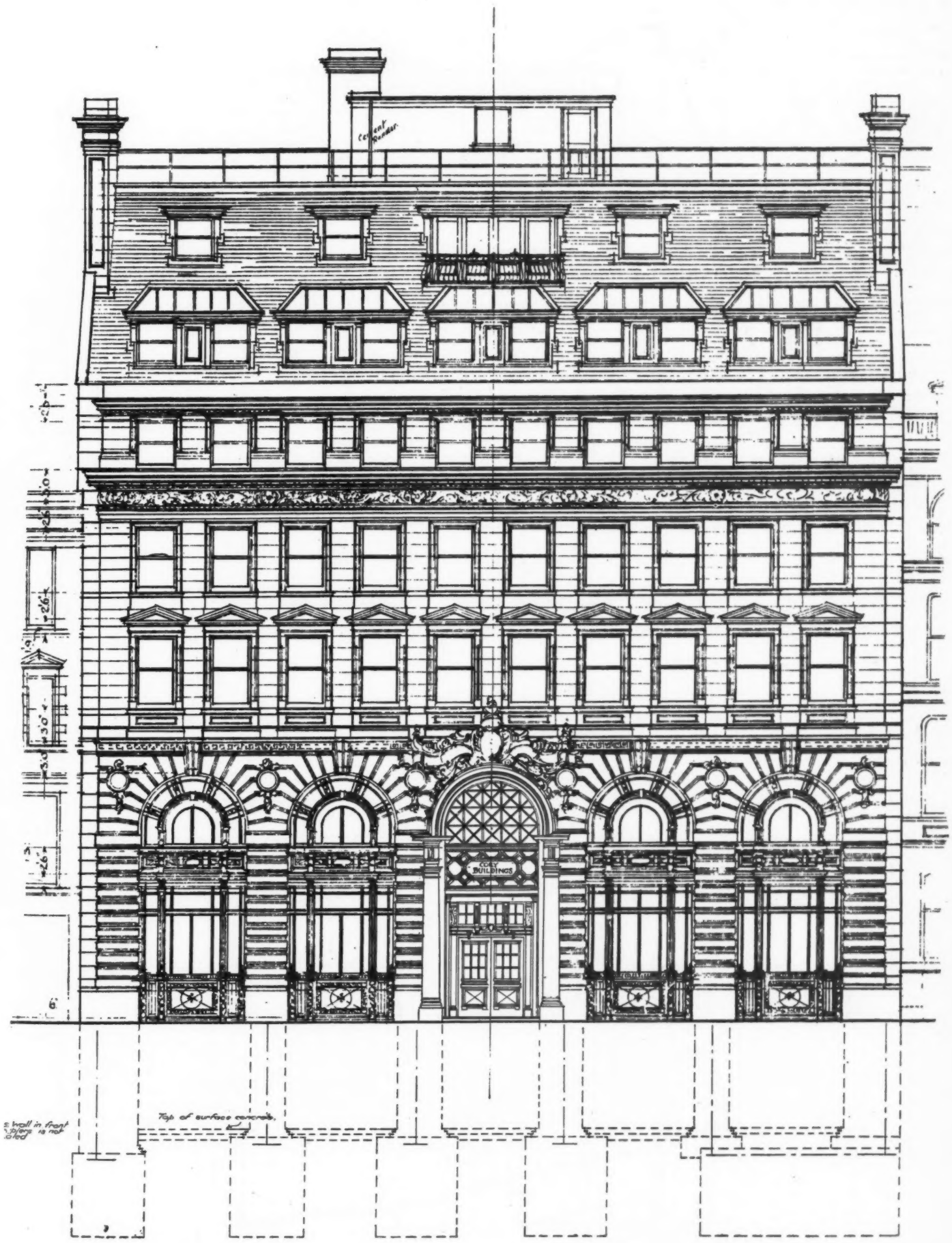
The list of awards made by the Société des Artistes Français, Jury de la Section d'Architecture, is as follows:—

MEDAILLES D'OR.—Sir John James Burnet and Mr. John William Simpson.

MEDAILLE D'ARGENT.—Mr. Edward Guy Dawber.

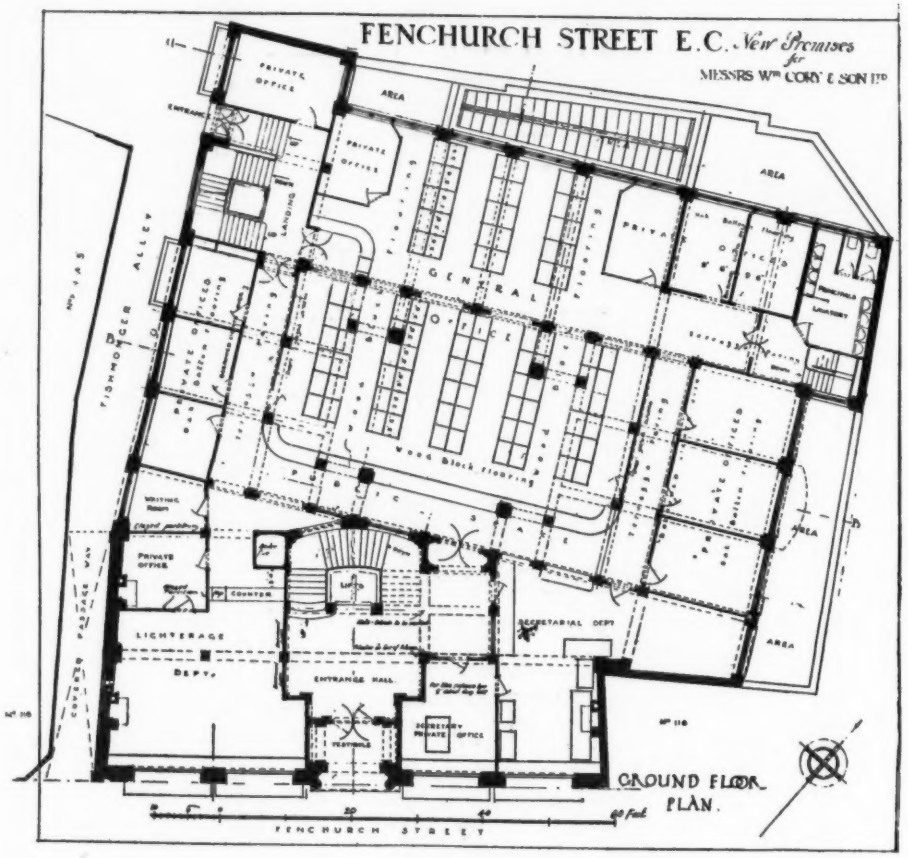
MEDAILLES DE BRONZE.—Sir Edwin Landseer Lutyens, Mr. Harold Chalton Bradshaw, and Mr. Alexander N. Paterson.

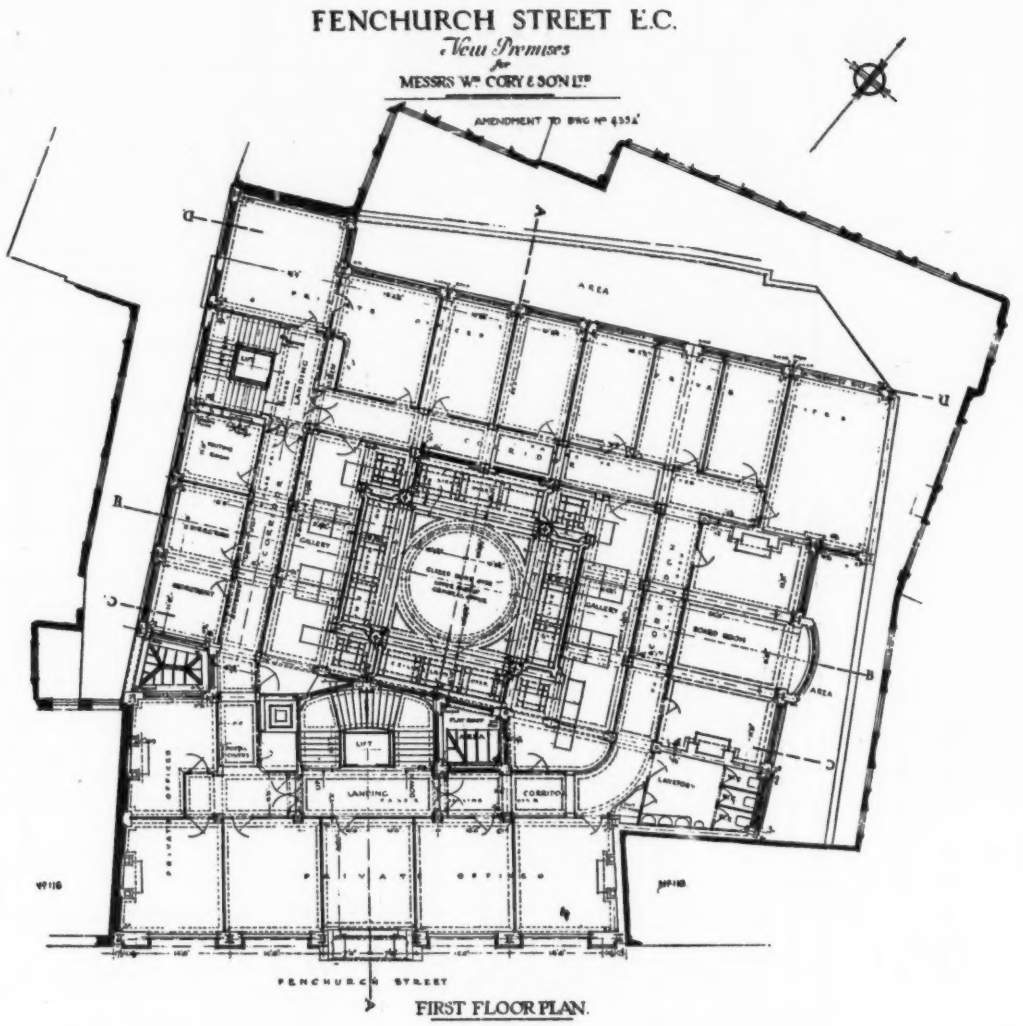
MENTIONS HONORABLES.—Mr. Arthur Joseph Davis, Mr. Detmar Blow, Mr. Giles Gilbert Scott, Mr. Henry Philip Cart de Lafontaine, and the late Mr. Ernest Newton.



New Premises for Messrs. Wm. Cory & Son, Ltd.: Elevation to Fenchurch Street.

The late EDGAR STONES, Architect; MR. E. DOUGLAS SELWAY, A.R.I.B.A., and MR. W. GILBEE SCOTT, F.R.I.B.A., Architects for completion. (*See p.* 940.)



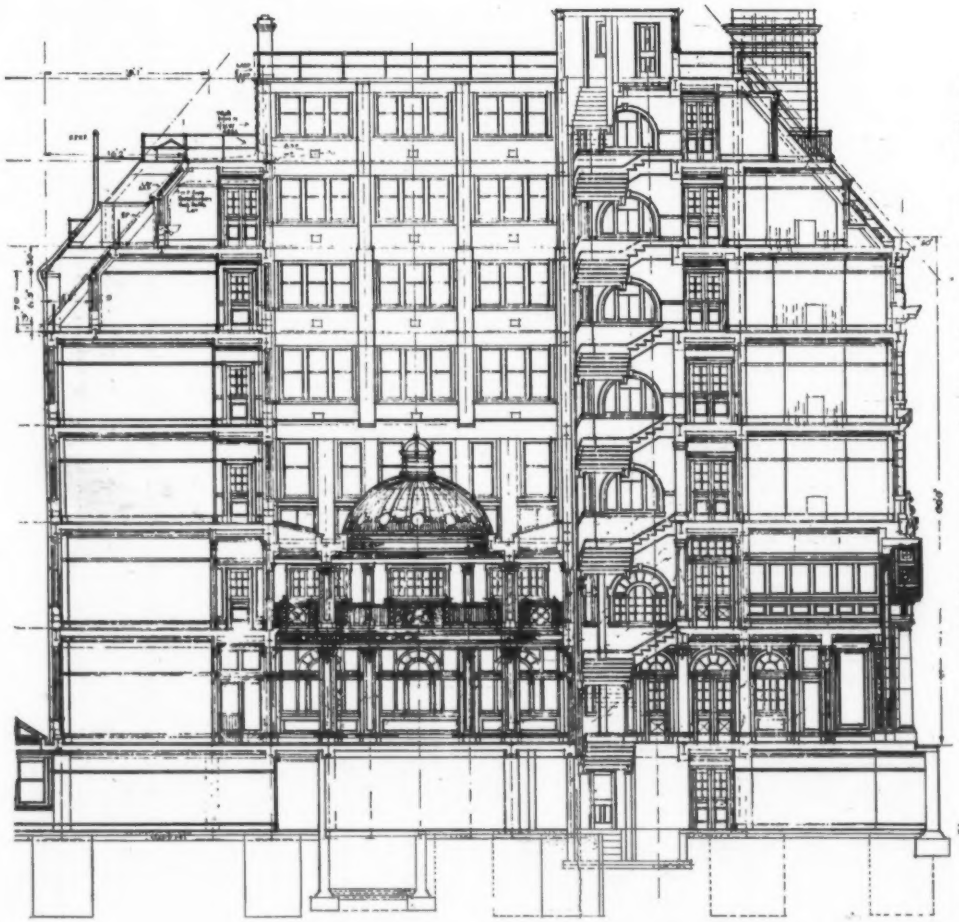


New Premises for Messrs. Wm. Cory and Son, Ltd., Fenchurch-street, E.C.

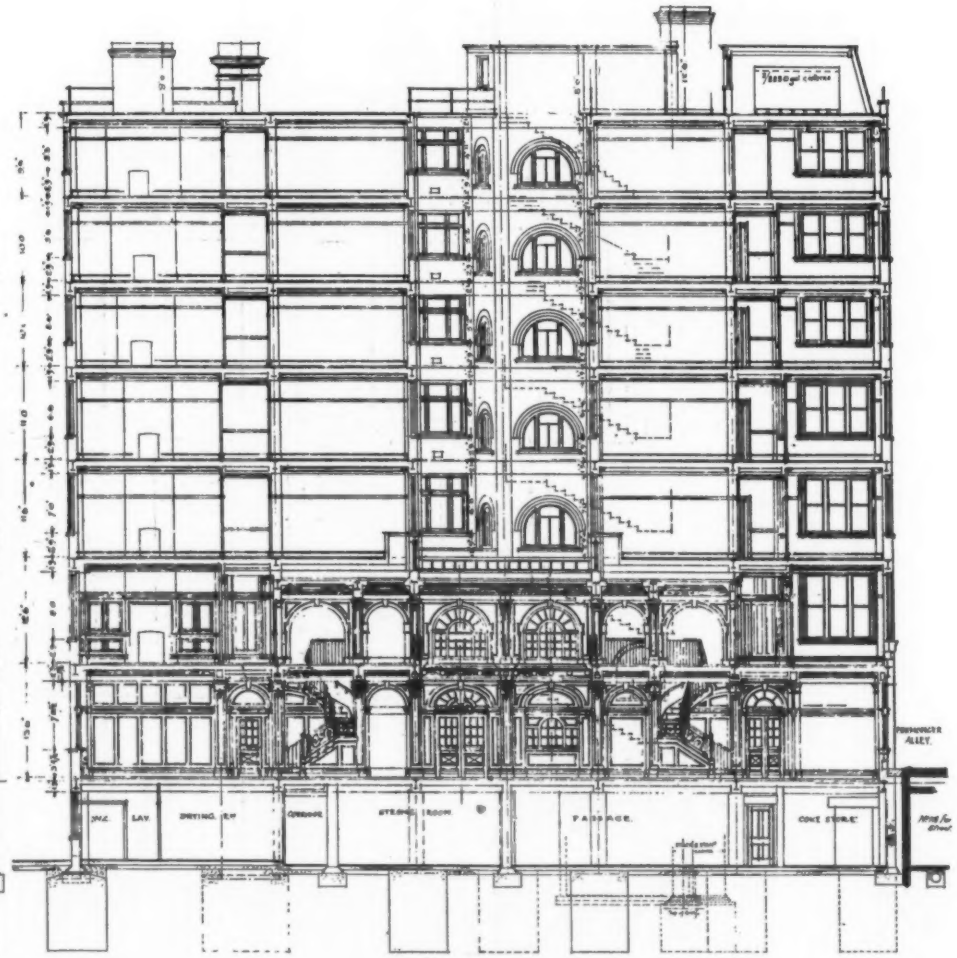
The late EDGAR STONES, Architect; MR. E. DOUGLAS SELWAY, A.R.I.B.A., and MR. W. GILBEE SCOTT, F.R.I.B.A., Architects for completion. (*See p.* 940).

FENCHURCH STREET E.C.

New Premises
for
MESSRS WM CORY & SON LTD



SECTION A.A

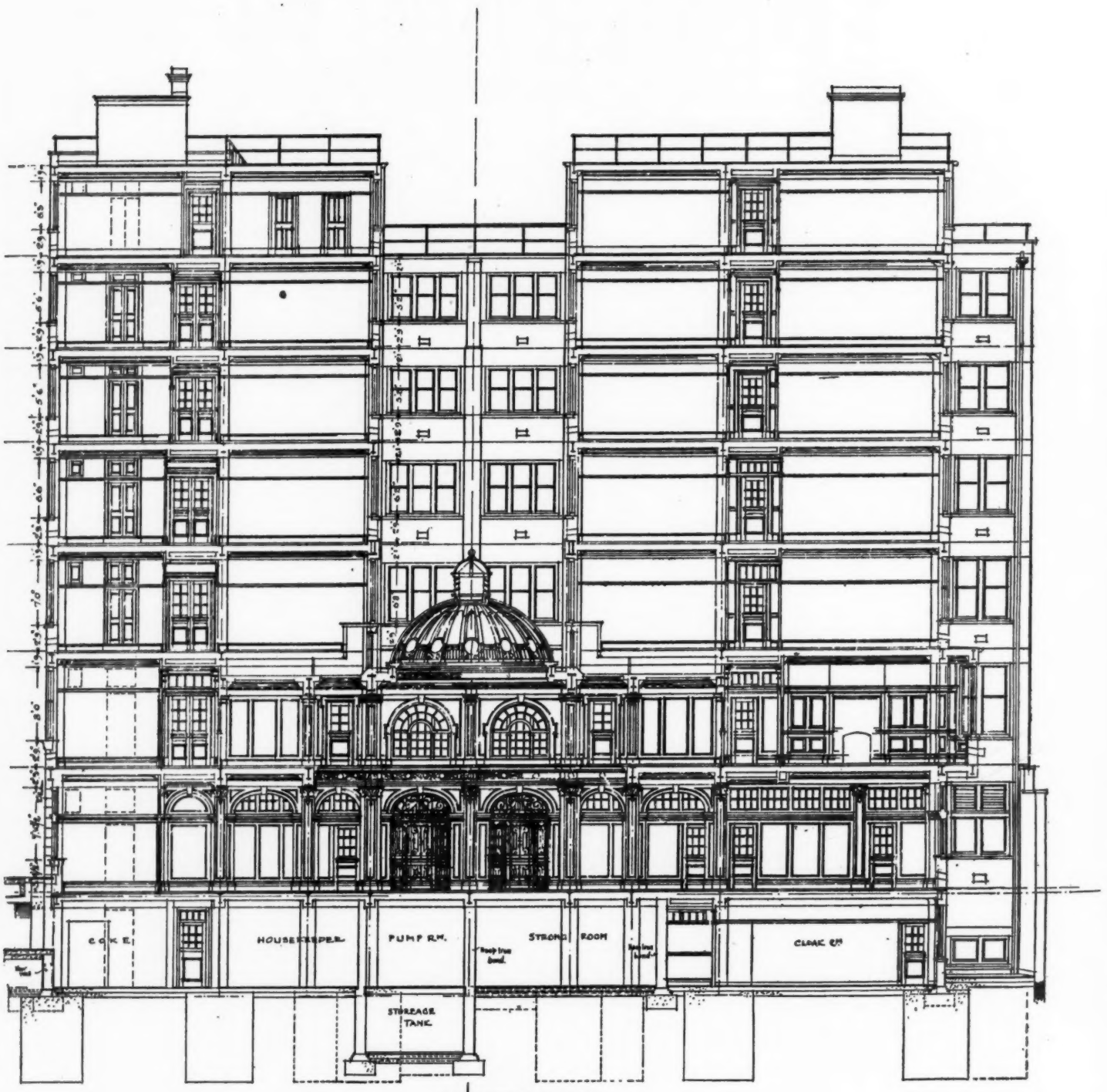


SECTION C.C.

Scale of feet

New Premises for Messrs. Wm. Cory & Son, Ltd., Fenchurch-street, E.C.

The late EDGAR STONES, Architect; MR. E. DOUGLAS SELWAY, A.R.I.B.A., and MR. W. GILBEE SCOTT, F.R.I.B.A., Architects for completion. (*See p.* 940.)



SECTION B B

New Premises for Messrs. Wm. Cory & Son, Ltd., Fenchurch Street, E.C.

The late EDGAR STONES, Architect; MR. E. DOUGLAS SELWAY, A.R.I.B.A., and MR. W. GILBEE SCOTT, F.R.I.B.A., Architects for completion. (*See p.* 940.)

COTTAGE DESIGN.

BY MANNING ROBERTSON.

THE subject of cottage design has recently provoked so much discussion, and the phrases, "brick boxes with slate lids" and "mock picturesque," have been so lavishly bandied about among the combatants, that it is instructive to inquire whether the style of cottage architecture evolved through the Government housing schemes, under the designs of the architectural profession, is only a passing fashion, or whether it contains principles of permanent value. If cottage design is merely a matter of passing fashion, and if one man's judgment is as good as another's, then the less heard about design the better, the whole fabric of the arts vanishes, and there is nothing of the kind, good, bad, or indifferent, in the world. The artist, including the architect, cannot, however, accept the principle of relativity when applied to æsthetic values; he regards the man who advances such a suggestion as one too lazy to take the trouble to educate his mind, and too conceited to admit that he does not understand the subject. The attempt to define design has never been, and never will be, a success, but certain elementary principles can be laid down for the guidance of the average man. The genius can override every rule and principle, but the country with a high average appreciation of art values, more especially in regard to architecture, is better off than that which contains one genius and a low average; we cannot create genius, but we can educate ourselves, and so raise the average of understanding.

The views expressed in this article are not personal opinions, but are indications of the trend of elementary cottage architecture as revealed by the work of a profession which has given careful and prolonged study to the subject, and whose work, in this particular direction, is therefore entitled to respect.

Leaving the planning of the cottage out of account, let us assume that an elevation is required containing a front door with a window on each side and three windows over, the spacing and width of the windows being fixed, let us say, by internal requirements. Such a design, treated solely from the utilitarian point of view, is shown on Fig. 1. This may accurately be described as a brick box with a tile lid; it is dull and absolutely uninteresting. If we examine into the cause of this dullness we find two principal reasons: first, the building is not framed in at the top, and the lack of cornice or eaves shadow produces an effect comparable with a hat without a brim; second, the plain sheets of glass in the windows and door provide no reasonable unit of scale for the building. That these defects have been instinctively recognised by the designer of suburbs is demonstrated on Fig. 2, which shows the same house "beautified" in the usual manner, at considerable expense; and yet ninety-nine architects out of a hundred would infinitely prefer to live in house No. 1, because, whereas No. 1 is dull, No. 2 is offensive. The glass is divided up, it is true, but it is only partially divided, and the small panes are horizontal instead of vertical. The glazing of a well-proportioned window is divided into vertical panes; one horizontal window might be tolerated in a village, just as no village is complete without its idiot, but the whimsical should never take the place of the normal. A man's head is adequately framed in a vertical window pane, and the heights of the eyes of men, women, and children vary enormously more than the width across their eyes, hence the inefficiency of the horizontal pane and our natural, partly sub-conscious, dissatisfaction at its proportions. The remainder of the "ornament" in Fig. 2 gives the (correct) impression that the designer has attempted to make his house appear grander than it really is, and the effect is consequently tawdry and gimcrack. The chimney is coarse and top-heavy in appearance, solely because the oversailing courses project at least twice as far as they should; the disproportionate effect is evident, and is, unfortunately, to be seen everywhere.

Fig. 3 illustrates the obvious and commonsense way of dealing with the problem. A good projection is given to the eaves, the windows and door are designed in a straightforward and business-like manner, and the top courses to the chimney oversail very slightly. The whole gives the impression that the man who built it wanted a good sound job, and was not out for effect on the cheap. It can hardly be denied that No. 3 is a far more satisfactory design than No. 2, and it is equally clear that it is cheaper to build. While the difference in cost between Nos. 1 and 2 would be considerable, that between Nos. 1 and 3 would be negligible, and yet, in the design, there is all the difference between a brick box with a tile lid and a house.

The house shown in No. 3 still, however, requires something more to make it an attractive object. That something is texture. When built with pressed bricks of a uniform colour, and roofed with evenly-coloured smooth tiles, its proportions would not be sufficient to save the house from being uninteresting, although it would never be offensive. With good facing bricks, or with limewhited walls, and a variety of colour in the tile roof, the same house would become attractive. The deliberate attempt to secure a deadly monotony of colour, both in bricks and tiles, has greatly aggravated the depressing appearance of the average pre-war suburban house. Some two years ago a serious shortage of tiles for Government housing schemes led to the practice of mixing different-coloured Broseley tiles together before starting on a block of houses, in case one colour should run out before the block was finished, and this necessity has had excellent results in producing texture in roofs which would otherwise be dreadfully monotonous.

An interesting point about the Fig. 3 type of design is that it is similar to the old traditional English cottage architecture. This does not arise from a copying of old work, but is rather because the same problem is being automatically solved in the same way; for the most part, the earlier cottage builders used the same materials as are in use to-day, and the fact that we have arrived at much the same result as they is, in itself, evidence that we are on the right track, at last, so far as small domestic architecture is concerned.

AN ADVISORY ARTS COMMITTEE FOR BIRMINGHAM.

A DEPUTATION from the Birmingham Civic Society waited upon the Lord Mayor (Alderman D. Davis) about three months ago, with the object of interesting him in a scheme for the formation in the city of an Advisory Arts Committee, to which all new designs for public buildings, bridges, statues, fountains, monuments, and memorials to be erected in the streets, public parks, or any municipal building should be first submitted. His lordship undertook to lay the scheme before the committees of the Council likely to be affected, and all of them approved the idea, subject to their having a free hand as to what should be submitted to the Advisory Arts Committee, or whether or not they should adopt the criticisms and advice which might be given. At a recent meeting presided over by the Lord Mayor, and attended by several Chairmen of Corporation Committees, Sir Gilbert Barling (Vice-Chancellor) and the Principal of Birmingham University (Mr. Grant Robertson), and Mr. W. Haywood (Honorary Secretary to the Civic Society), a draft constitution for the new Committee was approved. The Committee will consist of the Lord Mayor, a representative of the Public Works Committee, the City Surveyor, the Vice-Chancellor and the Principal of the University, the Director of the School of Art, the Director of the School of Architecture, the President of the Birmingham Architectural Association, the Chairman and Honorary Secretary of the Birmingham Civic Society, and a representative of the Education Committee. A clause in the draft constitution sets forth that hereafter all new designs of the kind referred to above shall be reported on by the Advisory Arts Committee.

There is a good deal to encourage us in this announcement, and we are glad that the very protracted and difficult negotiations which have been necessary in order to bring such a Committee into existence, and which have been conducted by the Civic Society as a Society, have been so far successful.

Architects' Estates.

Mr. George Evelyn Tidmarsh Laurence, A.R.I.B.A., of Cranley, Twickenham-road, Teddington, architect, for 30 years architect of the Swansea Education Authority, left estate value £17,428.

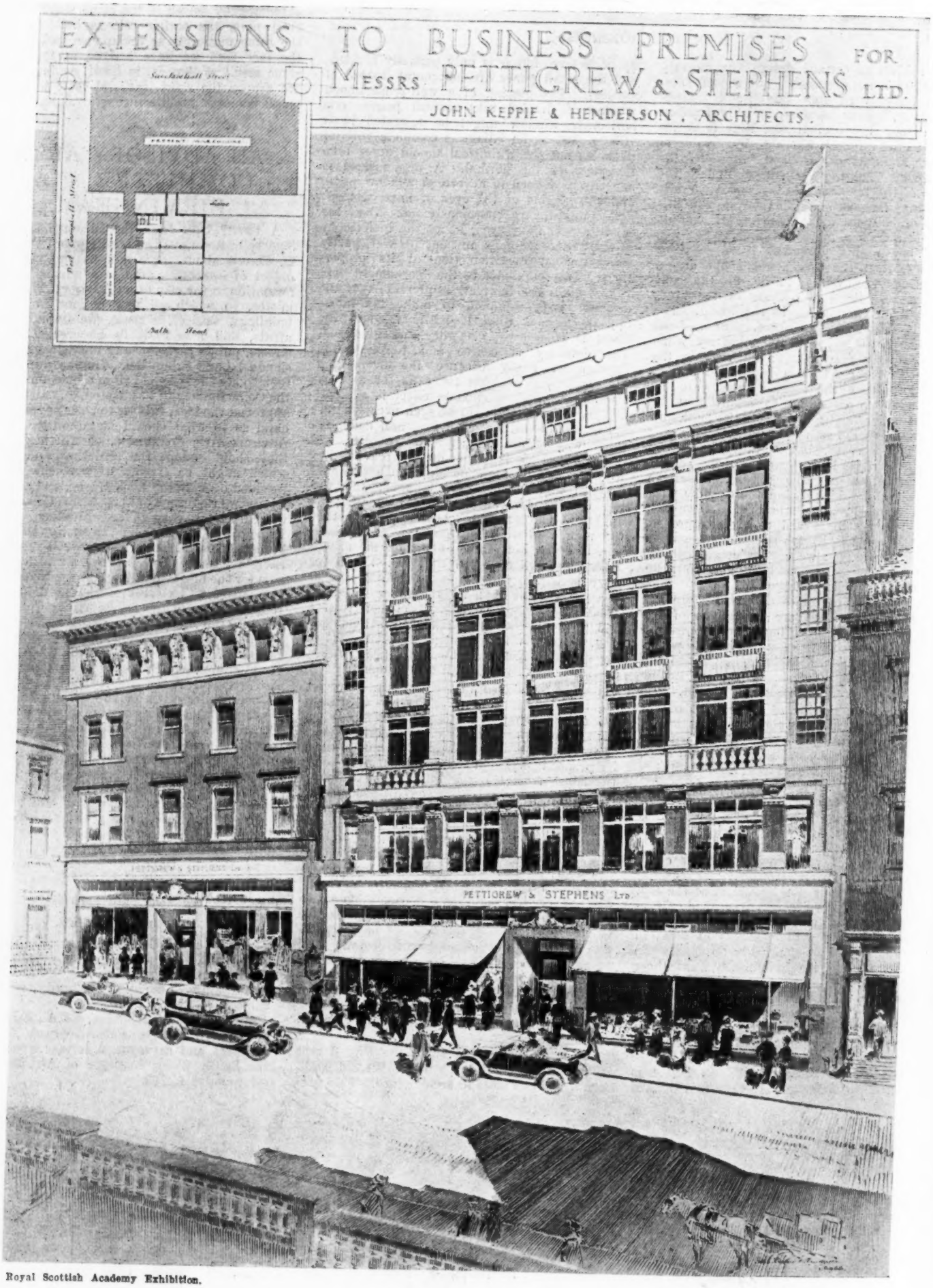
Mr. George Eley Halliday, F.S.A., F.R.I.B.A., of The Hermitage, Fairwater-road, Llandaff, architect and surveyor, a former President of the South Wales Institute of Architects, left estate value £5,798.

FIG 1. UTILITARIAN.

FIG 2. "BEAUTIFIED"!

FIG 3. PROPORTION AND SENSE.

Cottage Design.


EXTENSIONS TO BUSINESS PREMISES FOR
MESSRS PETTIGREW & STEPHENS LTD.
JOHN KEPPIE & HENDERSON, ARCHITECTS.
PETTIGREW & STEPHENS LTD.

Royal Scottish Academy Exhibition.

Extensions to Premises, Bath Street, Glasgow.

MESSRS. KEPPIE & HENDERSON, Architects. (*See p.* 938.)

LONDON STREETS AND RECENT BUILDINGS

PROFESSOR C. H. REILLY, M.A., Roscoe Professor of Architecture, Liverpool University School of Architecture, gave an interesting lecture on "Some London Streets and their Recent Buildings" at the R.I.B.A., No. 9, Conduit-street, W.1, on Thursday evening last week. There was again a large attendance.

MR. H. M. FLETCHER, who presided, said that all architects would agree that what they really needed to-day, in the interests of architecture, was discussion. They believed that the art was a civilising force, no less marked than poetry, music, and painting; but while the latter were constantly the subject of discussion and criticism in the Press and where people met together, architecture, for some reason or other, was left alone. There was no reason, in the nature of things, why this should be. There were people just as well qualified to speak about architecture as about the other arts. There was nothing which tended more to the vitality of an art than universal interest in that art.

PROFESSOR REILLY said that what he proposed to do was to lecture, perhaps in a schoolmasterly way, because that was his profession, on a couple of what he thought were typical London streets. With the assistance of Mr. Hudson he would be able to show them some of his (Mr. Hudson's) wonderful photographs of two London streets, and to offer a few criticisms and appreciations of some of the modern buildings. He felt, with their chairman, that it was necessary for architecture that they should stimulate public interest in it, because it was the thing it lacked more than anything else. The restraint of cultured people behind them was the one thing which would keep them in check, preventing them running too far in their exuberance, and ensuring that architecture of this age was as dignified and expressive, in a spiritual way, of the material needs of their civilisation as was the architecture, say, of the Georgian period. It always seemed to him an extraordinary thing that they had periods in architecture when it seemed impossible to do wrong, and then—he would not say quite the reverse—but there were periods like the present when it was difficult to do right. He took the reason for that to be that there was not that enthusiastic cultured interest in architecture that appeared to have been a quality of the times when great things were done. How were they to bring about that same state of intense interest in the art which affected all of them so vitally, the art from which they could never make any escape? He could not say, except, perhaps, through such work as was being done in the schools of architecture which had been founded in different parts of the country. The effect of schools of architecture, which had been in existence in France for 250 years and in America for 25 years, was that in those countries the general standard was considerably higher, if he might venture to say so, than it was in England. He felt that schools of architecture held the future of the art largely in their hands, but architecture could never be the great and living force it should be if it was only understood by certain highly-trained individuals. It must make a popular appeal, and it seemed to him a good step had been taken by several papers which were publishing appreciations and criticisms of modern architecture, just as they printed appreciations and criticisms of sculpture, music, painting, drama, and the other arts. It might be said to him, "Here you are, an architect with a small practice. You have not shown in your work that you can do better than the work you are criticising." Well, in his particular walk in life it fell to his lot to criticise drawings, schemes, and architectural castles in the air daily, and he had to form some kind of general principle of what he thought was characteristic of architecture of their time. That seemed to him his only possible qualification for speaking there that day. He was very glad the Institute had offered him that opportunity, because it seemed a little unfair to be saying things in the lay Press which he had no opportunity of saying face to face in the home of architecture.

Professor Reilly then showed some views of Parisian streets. In the Avenue de l'Opera, which was not designed by one architect, but had been carefully controlled, it had recently become necessary to rebuild a building, but this had been done in conformity with some old buildings opposite, so that the idea of the street had been maintained. In Liverpool, said the lecturer, they were very proud of having made what they called a boulevard, but, as they would see from the view on the screen, the trees were growing everywhere, and the houses were just the suburban architecture of the period. While smaller places had had the public spirit to employ an architect for the ennobling of their streets, a great city like Liverpool, which had achieved great things in the past, had, in this case, made a lamentable failure. Showing a section of the Strand, Professor Reilly said this was what he called the "museum" spirit, which had considerable following in England. It consisted of a number of interesting buildings put side by side without any connection with one another. As an extreme example, a view of Wall-street, New York, was shown, the lecturer remarking that the essence of a street seemed to be its verticality. Cornices which only ran short lengths on short fronts could not express that horizontality.

The lecturer said the two streets he had chosen to illustrate were the street running from Trafalgar-square to St. Paul's and Regent-street. The Strand, if they went to the Trafalgar-square end, started in the same way as a country lane leaving a village green. They would pass on the right the large, undistinguished block of the Grand Hotel, and on the left there was a beautifully designed building called Morley's Hotel. This was a building of great dignity: it had to the Strand a beautiful two-story bay, standing on Doric columns. That was well worth studying as a piece of fine town architecture. Someone had added a garden porch on the Trafalgar-square side, as an entrance to the African Bank, of which the columns, standing on pedestals, were dwarfed by the size of the building. The courtyard of the Charing Cross Hotel formed a great gash in the street. The entrance lodges to the courtyard were absolutely covered with advertisements, so that the architecture had disappeared. That district suffered more than any other part of London from advertisements at every angle, illuminated at night. It seemed to him they had got to accept that for that portion of London. New York had very wisely said that that kind of advertisement must be for Broadway and nowhere else, with the result that Broadway, when lit up at night, was something more amusing and exciting than Earl's Court. If they made such a sacrifice in the case of the Strand, let them confine all their advertisements there; it would be a very exciting place, too, at night. With regard to the building at Charing Cross station, it had had one or two extraordinary things done to it. Two conservatories had been forced out from the main façade, and yet the station was the great terminus by which most foreign visitors reached London. He referred to the incongruity of the idea of "a little conservatory poking out of the first floor," and remarked that that sort of incongruity would not be found in other metropolitan towns. But it was not incongruous with the idea of the Strand. It was the street which every Colonial loved; it was a mart, a bazaar, and he felt that they must accept the picturesque life to which it was more fitted, and not try to make of it something big and monumental. Where that attempt had been made, as in the case of the Savoy and the Cecil hotels and Coutts' Bank, the street had suffered its most serious damage. Coming to the corner of Duncannon-street, the lecturer drew attention to the twin towers on the building there, and said the building was a beautiful thing until they came to the ground floor. Then there were the two banks: one had big polished granite pilasters, in a style that public-houses and banks adopted some twenty years ago; the other bank had polished granite columns which only reached the pedestal. That was the sort of individualism they seemed to suffer from so often in this country. In the Strand were to be seen bazaar-like individualistic buildings of more or less the same size, side by side, and if, among such buildings, others were to be erected on a large scale, the Strand would not be the place the Colonials loved. With regard to the Savoy, this was a big building with a multitude of small parts; it was very difficult for architecture to be achieved on those lines. The Cecil had big parts, but the columns and cornices did not give it sufficient unity to make it imposing. Passing down the Strand, on the left side, they came to the New Zealand building, which was quiet and flat, with a feeling for the plane of the street in it. It was a satisfactory piece of architecture. On the opposite side was a jewel—a building by Sir Chas. Barry, now used as a clothing store by Sir H. Mallaby-Deeley. It was a beautiful building, and was erected as a genteel gambling establishment in works of art.

Speaking of the Gaiety Theatre, the lecturer said no building could be less gay. It had certain qualities of mass, which, with the colonnades, suggested a municipal building, but its gaiety was that of an elephant on its back kicking its legs in the air. The *Morning Post* office had no unnecessary columns; its rhythm was given by bringing together the moulded surrounds of the windows, so that they got rhythmic effect of the colonnade without the colonnade. In Somerset House there was a solidity and dignity which was missing in their competitive architecture to day, and there was very little in the Metropolis to compare with it. St. Mary-le-Strand stood like a sentinel in the midst of the huckstering life of the Strand, dividing the traffic like the Cenotaph stood in Whitehall. He (the lecturer) liked to think of that. Australia House, went on Professor Reilly, was like a ship in full sail, and had a unity missing in the block by Norman Shaw. The whole building had a fine massiveness and scale, although the architecture was simple. After alluding to Gladstone's statue and other buildings on the way to St. Paul's, the lecturer exhibited Wren's church, which, he said, after 300 years was the most successful building in the street.

Regent-street, said Professor Reilly, must have been very exciting, Nash's plan being one of the noblest pieces of town planning. A fine portion of it could be seen from the windows of Carlton House. The street had not hard lines like a French street, but Nash and the architects who worked with him gave a projected block, now a courtyard set back, so that the general feeling was that one was walking through courtyard after courtyard of one great palace. He expected that George IV, who, as Regent, called the street into existence, must have felt that he had got into his hands Aladdin's lamp. Old Regent-street was an achievement which, not being big enough to equal, they were small enough to destroy.

The CHAIRMAN expressed thanks to Professor Reilly for his address, and to Mr. Hudson, who kindly lent the illustrations.

INTERNATIONAL THEATRE EXHIBITION.

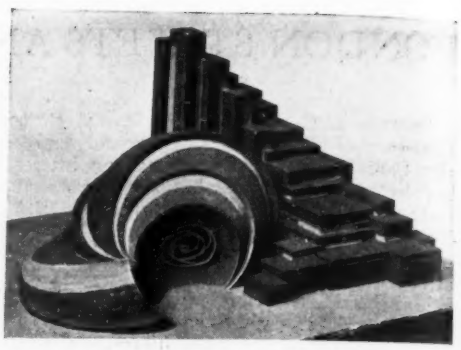
AT last there are signs that the English theatre is coming into line with America and the Continent. For many years there has been a certain amount of unrecognised high-brow activity, which has been largely ignored by architects, whose task it should be to co-ordinate the various elements into a building capable of meeting the new requirements of staging, lighting, and seating, and of suggesting, by its architectural treatment, the new ideals of dramatic art. Thanks to the initiative of the directors of the Victoria and Albert Museum, and to the activities of various bodies connected with the theatre—especially of the British Drama League—the Exhibition, which met with undoubted success in Amsterdam, has not only been transported to England and housed by the Government's hospitality, but is also considerably reinforced by new English and American exhibits. This Exhibition will be on view until July 16, and a failure to visit it is not only to miss an unique opportunity of comparing the work of the various countries, but also to ignore one of the most vital art movements of the day. And what architect can afford to do that?

The chief impression to be derived from the Exhibition is that the position of the actor in the hierarchy of stagecraft is undergoing a big modification: The day of individualists is passing, and the actors are becoming more and more subservient in a comprehensive scheme of production, in which everything is synthetised and co-ordinated into a single unity—a unity in which colour, mass, and lighting values, gesture, voice, and movement values, are skilfully blended to produce a particular effect, to which all else is subservient. It is probable that in the near future the star actor will be found only on the music-hall stage, while the theatre stage will tend towards companies of actors working under the direction of a controlling and co-ordinating producer.

A study of the models of the stage settings reveals certain main currents, yet the whole is for the most part a revolt against realism. An attempt to reproduce nature is not the function of the dramatist; nor, therefore, is it that of the scene designer. In architectural settings exactitude is not aimed at, and in a period play an effort is made to extract the flavour of the time rather than to reproduce the exact detail. The success of this method is seen in Lovat Fraser's designs for the Beggars' Opera, which are, without resorting to archæological correctness, redolent of the eighteenth-century spirit. This subjectivity is, by certain designers, pushed to great lengths, sometimes by means of colouring and lighting, as in Jorelik's setting for Tolstoi's "Power of Darkness," where subtle graduations and changes of colouring and lighting indicate the thoughts and actions of the players; or in Macdermott's setting for "King Lear," which show, on the same set, by a change of lighting, Lear dominant and Lear crushed. For Ashworth's setting for Stephen Philips's "Herod" an architectural composition of steps and arches is most cleverly contrived to suggest the sinister, diseased, and distorted mind of Herod. To state that the design is unreal, since steps never were so distorted and uneven or an arch so unstable, when it is intended as a background to the actions of a man whose mind is as distorted as the steps and as unstable as the arch, is to miss the whole significance of this most important aspect of the theatre movement. But the pioneer in this development of the subjective aspect of the *décors* is Gordon Craig, and, by devoting a room to his and to Adolphe Appia's work, the visitor is able to gauge the wide extent of his influence, and that of a man who, in another continent, follows most nearly in his footsteps.

Bound up with this subjective interpretation of the play into scenic terms is the simplification of means. The fact that many of the modern theatres work under financial difficulties may have constituted an additional incentive to economy, but, whatever the cause, the results are often brilliantly successful. Perhaps the most ingenious is a set of screens and a trellis designed by Gordon Craig, which by slight rearrangements is capable of a great diversity of effects. Such scenes are, for the most part, painted a neutral tone, and colour is given by means of the illumination, so that during one scene the entire effect can be changed by a gradual alteration of a diffused or concentrated coloured lighting. By a slight change to a fixed architectural setting a variety of different scenes can be obtained. Woodman Thompson's design for "Romeo and Juliet," in which twenty-four changes of scene were made in the dark on one built-up basic setting, is an example of this. Such devices are the obvious solution to the problem of speedy changes in theatres unequipped with costly machinery.

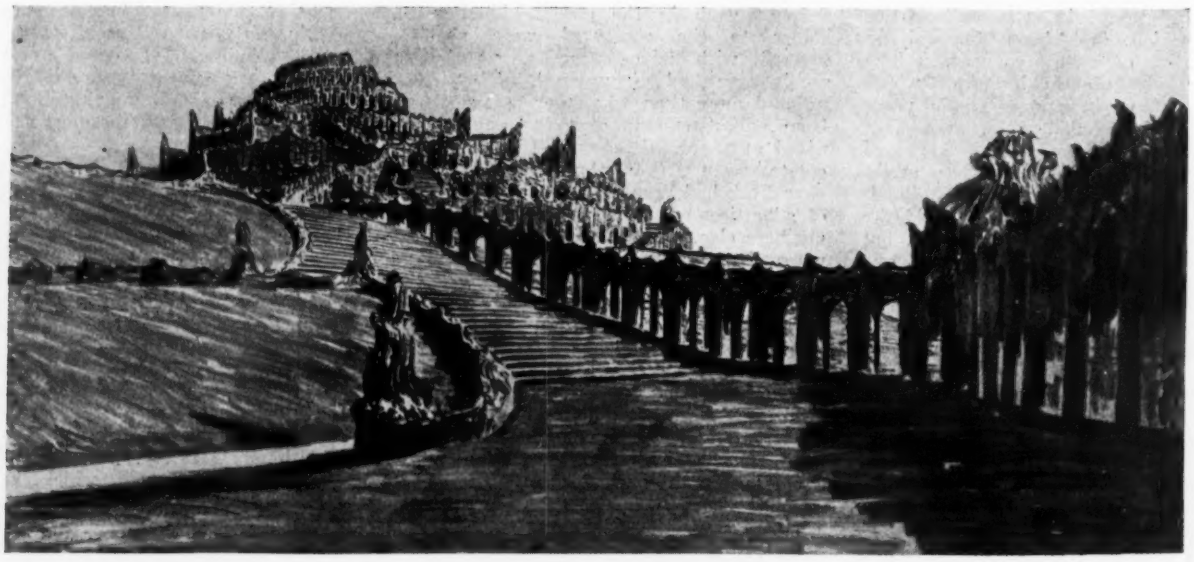
These methods of simplification and subjective treatment find most favour in England and America. The Russian exhibits show a greater reliance on the rich colour effects with which we have been familiarised by the Russian ballet. These are either on purely decorative lines, such as Benoit's set for "Le Rossignol," or by means of more abstract



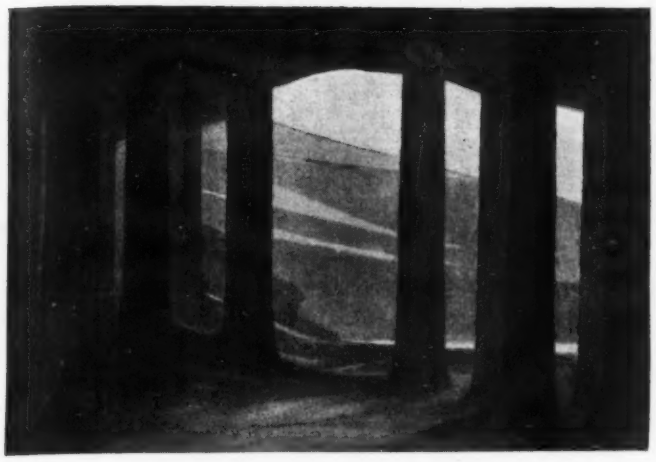
Model of a Theatre by Luckhardt.

painting, such as Larinow's designs for "Chout." An English counterpart to this method of approach is seen in some of Wolmark's exhibits. France's contribution to the movement is mostly epitomised in the "Vieux-Colombier."

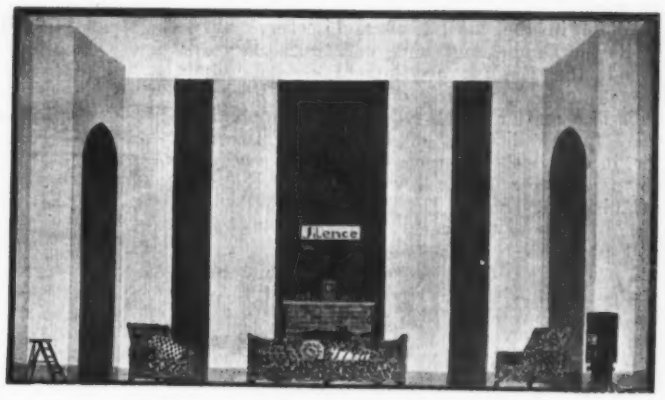
The most arresting of the purely architectural exhibits, of which there are not very many, is a design for a national theatre for Amsterdam by M. Wijdevelt. This is a vast project, which takes in the layout of a large piece of the surrounding town. Perhaps its chief interest lies in the complete breaking away, not only from established ideas of theatre design, but also from architectural treatment generally. The matter has been approached with an imaginative inspiration unfettered by tradition and custom, in a way that is quite unknown in this country. To criticise it after one brief inspection is a difficult problem, since art standards are largely a matter of convention. Here is something that disdains every convention. One general criticism emerges: a building should in some way suggest the material in which it is constructed. This design, by reason of its circular and elliptical intersections, appears to be so plastic as to suggest a design for execution in plasticine or modellers' clay. However, the exploitation of concrete is a matter that has received far more attention on the Continent than in England, and it is possible that these are lines of its ultimate development. Hans Poelzic shows a design for a theatre at Salzburg, the interior of which would appear to be derived from stalactitic formations. The perspective view, showing the building and its approach, is not very clear, but something of the baroque-laden town, with its love of wood-carved figures, seems to have influenced the designer. The main entrance of his Grand Theatre at Berlin, of which there are two photographs,



Salzburg Theatre (first plan): Front View.



Design for Stage Setting: "Parsifal," Act 1, The Sacred Forest.

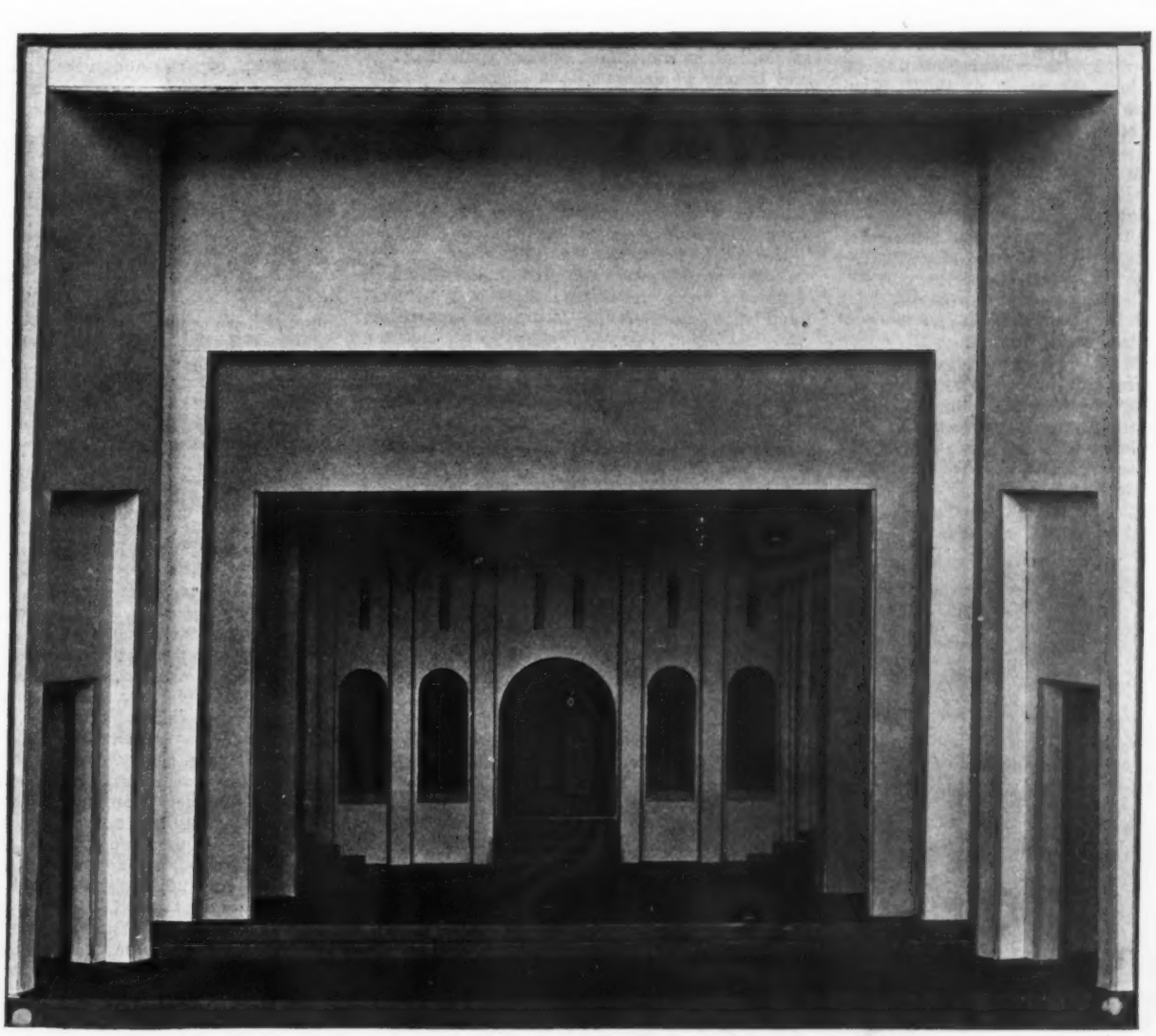


Design for Scene in "The Philanderer,"
BY BERNARD SHAW.

shows an elevation so devoid of features as to be dull and uninspiring, and in no way expressive of the new and vital theatre movement.

An entirely novel method of planning is worked out in a design by Oscar Strnad. This is a circular theatre, in which the stage, instead of being centralised, occupies the entire outer periphery, being mounted on a series of *bühnenwagen*, thus ensuring a speedy horizontal movement. The outer wall of the building forms the *rundhorizont*, by which the suffused lighting and atmospherical effects are obtained by processes of reflection. The planning adopted to achieve this complete ring of stage is extremely ingenious.

The German exhibits contain two small models of theatres by W. Luckhardt. As essays in plastic modelling of abstract forms these may be of some value, but as designs for a building, to be constructed in any of the materials at present at man's disposal, they would seem to be inconceivably fantastic. Oscar Kaufmann's National Theatre at Berlin is somewhat typical of the more usual modern German architecture, in which, without maintaining an obsequious reverence, the main parts of the *orders* are metamorphosed. A characteristic of this style is its verticality, in which respect it has a certain suggestive affinity with Gothic work. An interesting design is that by Van de Velde for the Congress of Labour Theatre at Cologne, built in 1914. Here, owing to unrestricted space, a symmetrical *functional* plan has been evolved, from which, with its many irregularities, a design of intersecting solids of various shapes has been built up. Indeed, the design relies almost entirely upon the roofing, meeting, and



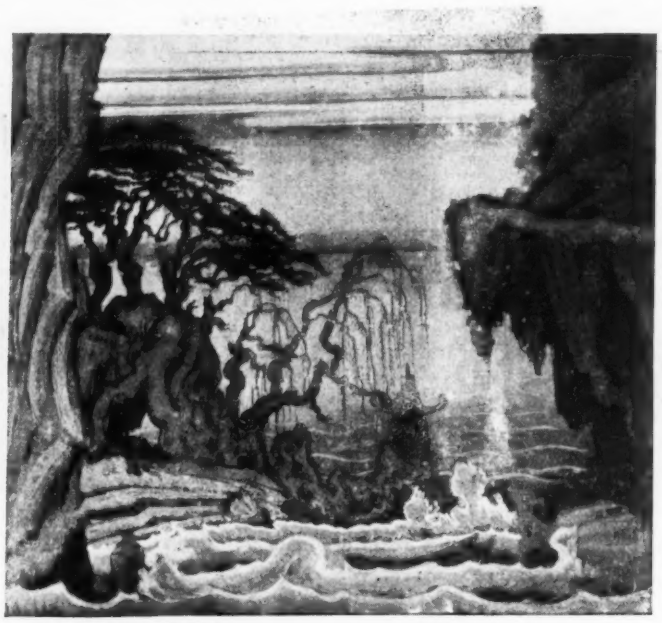
"Macbeth" Scene: The Murder of Duncan. Produced in 1912.

intersecting of the variously shaped and curved component parts, a necessity for economy probably preventing any expenditure on detail.

While in the matter of architectural exhibits the Dutch, Austrians, and Germans are ahead, the English are lamentably behind, having, indeed, nothing of interest to show. This is a matter which reflects most emphatically to the discredit of English architects, for, in every other respect, the English section compares most favourably with every other exhibiting country. English architects persistently ignore this very vital art movement, and plod along in the ruts of the last two centuries. It is to be hoped that architectural students will visit this Exhibition, and then, by getting in touch with those who, during the last few years, have been working at stage-settings, stage-lighting, and kindred problems, will definitely identify themselves with this movement, and evolve new buildings worthy of this great enterprise. A theatre, after all, should offer more attractions to the designer than almost any other building, for not only is it in itself a work of art, but its whole purpose is a dedication to art in one of its highest forms.

This is the attitude of approach which is evident in the exhibited architectural designs. Hitherto, the theatre has been considered as something apart, as a setting, maybe, for a brilliant gathering, or as a place for social intercourse. Now, however, everything is co-related to the performance; everything must tend towards a unified experience. The mere clothing of a series of cantelever galleries, in however fine an Empire, Baroque, or Adams garb, is not germane to the dramatic ideal. Probably, though few realise it, Wagner was the first to understand this, and to give it actual expression in the Festspielhaus at Bayreuth. Professor Littmann developed the idea in his famous theatres at Munich and Dresden. Now, by these experimentalists, whose work adorn the walls at South Kensington, further advances have been made, and a complete breakaway from the traditions as perfected in Garnier's opera house has been achieved. And the architect is striving, side by side with the scenic artist, with the illuminating engineer, and with the costume designer, in a new dramatic synthesis.

If there is a criticism to make about this very wonderful Exhibition it is that for the architect, at least, its interest would have been increased by the inclusion of models of the latest ideas of lighting and stage mechanism. Models of the *rundhorizont* and the *kupfelhorizont*, of the Fortuny lighting, of the revolving stage, the sliding stage, and the wagon stage would have been an additional attraction, for in this matter the artistic, the scientific, and the mechanical progress side by side.



International Theatre Exhibition.

Design for setting for "Le Rossignol."

MEDIÆVAL CHURCH MONUMENTS

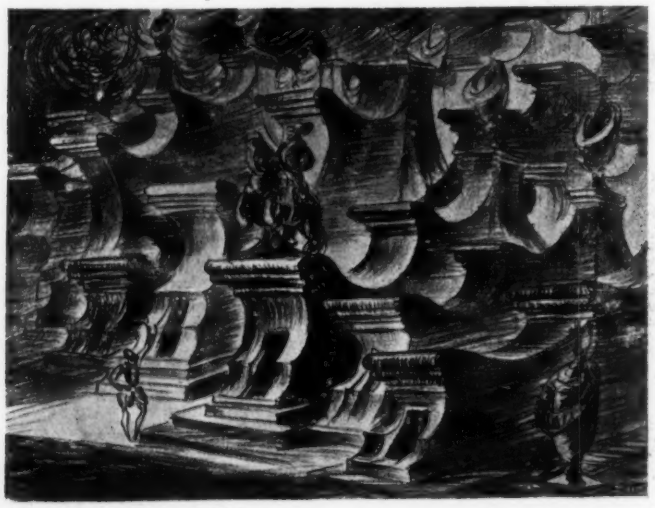
INTERESTS derived from history, heraldry, colour, and precious material will combine with the admirable illustrations of sculptured form to attract many readers to Mr. F. H. Crossley's recently-published work on "English Church Monuments,"* for, although he goes too far in claiming that "the architectural styles of the mediæval period can be studied to better advantage in the tombs and chantry-chapels which still survive than in the buildings themselves," they sometimes possess such delicacy and beauty of decoration as almost to justify his enthusiastic estimate of the importance of his subject.

The elements of scale and structural equipoise count for much in architecture, and the minute character of the tabernacle work and lace-like tracery of the monuments debar them from ever effectively representing the spirit of the more serious building forms which had to maintain the stability of large structures. Small in size and light in weight, these architectural confections minimise by their own slenderness the damaging effect of mechanical stresses, which increase in cubic measure as dimensions are enlarged; the architectural art displayed by the monuments, therefore, tends to exceed in richness and delicacy in just proportion as they are smaller in bulk than the buildings enclosing them. This consideration apart, it must be admitted that the ornamental adjuncts of architecture are exhibited in profusion in the monument, even if its scale and purpose deny it the qualities of grandeur and repose. These attributes of good art, however, are frequently present in the surrounding constructions, where they may be enhanced by the contrast with the filigree quality in the minor works, their fairyland of insubstantial pinnacles, attenuated buttresses, playfully cusped arches, and pendant vaulting carved from the solid and riotously disregardful of the law of gravitation which has to be studied with so much care by the designer of a vault of normal dimensions. From the figure sculpture included in the design of English church monuments much may be learned in regard to historical costume, armour, and the arts of heraldry, aspects of the subject treated at length in the text and illustrations.

The more sculpturesque questions of the effect of material on the nature of the finished work are also discussed; the sizes and thicknesses of slabs obtainable from different quarries, the coarse or fine grain, all contributed something to the design, though the almost universal custom in mediæval times of decorating with lavish colour and gilding probably equalised in effect the finely-carved alabaster and the coarser-textured limestone, since small-scale ornament was added in gesso above the carved surface when fine carving was impossible.

The author gives a word of warning to the reader that these effigies should not be taken as portraits of the deceased persons except where evidence exists that they are such; but he does not seem to be justified in considering that the word "counterfeit" in the building contracts implies anything else than a portrait or exact facsimile. Falstaff moralising over dead Hotspur, and Bassanio exclaiming over "fair Portia's counterfeit," leave no doubt that Shakespeare, at least, used the word to denote a likeness as nearly exact as might be.

Metal grates surrounding tombs are described in a separate chapter, and different types are illustrated which vary from the severest plainness to the richest intricacy. Westminster possesses some treasures of this kind in the tomb of King Henry V and Queen Eleanor, and in the magnificent brass screen in King Henry VII's chapel around the beautiful tomb of that king and his consort Elizabeth of York, which was designed and executed by the Italian, Pietro Torrigiano, a fellow-student of Michael Angelo. An even more elaborate gate of filed, pierced, and stamped iron exists in the St. George's Chapel at Windsor, where the minute scale of the metallic tracery is consistently maintained without loss of repose.



International Theatre Exhibition.

Design for scene for "Don Juan."

*"ENGLISH CHURCH MONUMENTS, A.D. 1150–1550. An Introduction to the Study of Tombs and Effigies of the Mediæval Period." By Fred H. Crossley, F.S.A. (London: B. T. Batsford, Ltd. Price £2 net.)

THE INCORPORATION OF SCOTTISH ARCHITECTS.

THE members of the Institute of Scottish Architects, which has now become the Incorporation of Scottish Architects, held their annual convention in Inverness on Friday last. The proceedings were held in the Council Chamber of the Town Hall, and were preceded by a civic reception from the Magistracy and Town Council.

Bailie Mackay welcomed the delegates, and Mr. Paterson, the retiring President, on behalf of the Incorporation of Scottish Architects, returned thanks.

The Secretary submitted the annual report and read the chapter reports for the past year.

Mr. Paterson said the only matter that might concern them in the report was the position of the Society in the new Incorporacy, and its independence and status as representing the architects in Scotland. The charter left the societies in Scotland quite independent so long as they were willing to co-operate with the Royal Institute as the premier body in dealing with architecture, not only in England but throughout the United Kingdom.

Messrs. Jas. P. Alison (Hawick), John Begg, (Edinburgh), and Jas. A. Morris (Ayr), were elected unanimously to the Council. Dr. James Walker was appointed auditor.

Retiring President's Address.

The retiring President (Mr. Paterson), after referring to the loss which the Institute had sustained by the death of Sir Rowand Anderson, said the annual report of the Council provided a summary of the various measures which had occupied its attention from month to month, and he would concentrate on two or three of them that were the most important and most intimately associated with the wishes and intentions of their founder. The Royal Charter, which they had obtained, could not be considered as an end in itself; rather was it the means to an end or, more properly, to many ends, and, of those, they would not go far wrong in ranking education, for the present at least, as the chief. The Education Committee was occupied in formulating a scheme for scholarships and prizes, with which the donor's name would be associated, and which would, they might hope, be but the first of a long series of such benefactions to be administered by the Incorporation in the years to come. To what cause or causes, he asked, must be attributed the amount of bad architecture which, they must sorrowfully admit, existed in their midst? Want of knowledge was tantamount to insufficient training, and it was in these that they must seek the root of all evil—want of knowledge on the part of the public as to what was good, want of proper training on the part of those entering the profession in which, as a proper function of such training, he would include the early elimination of the unfit. And the way of progress in both cases was education. The general aim of the Committee and Council had been to establish, through their Incorporation, a closer relationship between the training to be obtained in the offices of practising architects and in the schools, with the co-operation ultimately, it was hoped, of the Universities, and to lay down on that basis, and on general lines, for the guidance of aspirants and their parents and guardians, the course which should be followed. There had, perhaps, been a danger of forgetting, or at least minimising, the importance of a practical training in the application of the knowledge acquired in their school of architecture, which was only to be obtained in the daily routine of an office engaged in the production of the working drawings and those operations concerned with the active construction of a building. From the admirable paper recently delivered by Mr. Arthur J. Davis before the Manchester Society of Architects, he might quote the following sentence: "A sound office training is, in after life, the most valuable factor in an architect's career, and it is only when our system is so arranged as to enable the students to become familiar with practical, and simultaneously carry on their theoretical, studies that we shall obtain the best results." That was just the system so far carried on in Scotland which the Incorporation sought to put on a more regular footing. It was remarkable that there, in contrast to England, they conformed to Mr. Davis's proposals of State assistance to the schools, and had a curriculum not divided into years, but rather admitting progress by "values," thus permitting a due interpretation of school and office work. The closer touch which the Incorporation, as representing the practising architects of Scotland, had been taking, and meant to establish with the schools, could not fail to promote still further the course of education. The movement towards the establishment of University degrees in architecture, if crowned with success, would also be of great value in that connection, in at once providing a higher standard of attainment for their students and in increasing the general appreciation of the importance of architecture alike in its cultural aspect and in its public service. The education of the public of Scotland might be promoted by the lay Press showing a greater appreciation of architecture, by open lectures by men of eminence in literature or the arts, and by Lectureships in architecture regarded from its cultural aspect at the Scottish Universities. The Incorporation was in its first youth and it looked forward to an unrestricted future. Its field lay wide before it, and, taking full advantage of its added privileges and powers, in cordial co-operation with the Royal Institute and other allied societies, they might look forward with confidence to cultivating it ever more fully from year to year to the benefit alike of their art and of their country.

Election of President.

Mr. Paterson said the Council had nominated Mr. T. P. Marwick, Edinburgh, as President of the Incorporation for the ensuing year, and he had much pleasure in asking the meeting to elect Mr. Marwick as their President.

The election of Mr. Marwick was unanimous, and in taking the chair he explained his personal attitude towards matters of general interest affecting the profession. He said he should like to see every eligible man in Scotland become a member of their Incorporation. As a homogeneous body they ought to be able to exert a powerful influence in securing registration, and they needed that protection. The access door to architecture ought to be closed to the unqualified as the corresponding doors were closed in medicine and law. They required as much education and ability as the members of those professions. They required to live in as cultured an atmosphere; their work was as important, and they were as vitally interested in the health, well-being and guidance of the community. He was in favour of a more active Press propaganda, not only to help to develop the æsthetic sense of the community, but to arouse and widen the public appreciation of matters architectural. Then he wanted to see the housing question settled quickly and effectively. He wanted to see architects employed to provide all the houses required for the people. Governments and municipalities must cease to interfere with the building trade, or, indeed, any other trade. Let restrictions be abandoned and let there be no interference with the free supply of houses any more than there was with articles of commerce. Had the policy of the past been wise vast sums would not have had to be wasted on temporary houses, repairs on slum property only fit for the issue of a closing order, or for street widenings. He wanted to see all municipalities cease doing work of any importance, and employing independent architects who could do it better and cheaper. It did not seem fair to ask them to pay heavy rates to retain a staff of men for the purpose of depriving themselves of the means of earning the money to pay those rates.

He would like to see the number admitted to their profession regulated to some extent, where possible, to prevent unemployment, under-payment, and the compulsory drifting away into other walks of life, as was so common at present. He wanted to see all contractors prevented from paring away at the fringes of their work, encroaching on the architect's territory, and so see the competitive system further improved to that an immense waste of labour by the members of their profession might be avoided. This was engaging the attention of the Competitions Committee at present and also of the R.I.B.A. He was in favour of earmarking a considerable part of the revenue of the Incorporation for educational purposes; to extend their consulting library, to foster technical training, to widen the mental horizon and to inculcate intellectual nimbleness and facility of artistic expression in the young men who adopted the profession.

The President moved that the next annual convention of the Incorporation be held in Edinburgh. One reason was that they might possibly have a visit from the Royal Institute, and if they could combine the two things he thought it would be a good thing for their Incorporation.

Mr. John Keppie, Glasgow, seconded and the motion was adopted.

The Edinburgh representatives were appointed to the committee to make the arrangements.

Mr. Maclennan proposed a vote of thanks to Mr. Paterson for his services as President, and this was cordially passed, Mr. Paterson suitably acknowledging.

The visitors lunched in the Station Hotel, under the chairmanship of Mr. Marwick, and afterwards motored to Culloden Battlefield and Cawdor Castle.

SUMMER-TIME.

THERE is reason to fear that the compromise suggested by the Home Secretary in relation to the duration of summer time will rob this measure for daylight saving of its industrial value.

We are mainly an industrial nation and not an agricultural community, and, from the figures given by the Home Secretary in the House of Commons, it is apparent that the industrial section of the community is in favour of summer time being continued as at present fixed, and that practically it is only the agricultural interest which is opposed to it. It must be remembered that daylight saving was introduced mainly as an industrial measure to save lighting, but incidentally it has also tended to improve the health of the industrial population. It is now suggested that the period of summer time be curtailed at its beginning in March and at its termination in September, but these are the two months when summer time has its chief commercial value in saving lighting. The sun sets on March 25 and September 29 at about 6 p.m., and it is in these two months alone that summer time creates a commercial extension of daylight. The proposed compromise, after the nature of compromises, will rob this measure of its practical value, and it would be a compromise between parties not on equal terms. The agricultural interest does not use artificial light, and it is not confined indoors; the industrial population loses both daylight and time for recreation, and it is the industrial population which is the backbone of this country in the economic sense. The proposed compromise robs the measure of all industrial importance, and turns daylight saving into a mere measure to secure more pleasure.

Guards' Memorial.

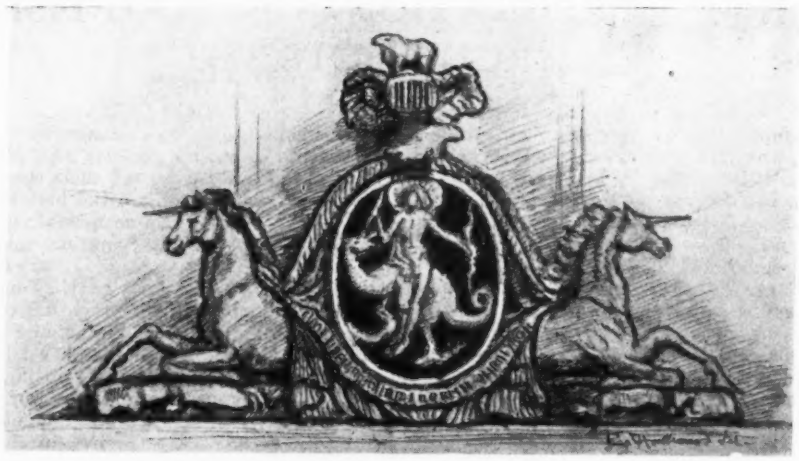
Bishop Shaw, Archdeacon of Oxford, dedicated the Guards' war memorial at Holy Trinity Church, Windsor, on Sunday. The memorial, which is illustrated on p. 935, is in the form of a reredos, designed by Mr. Gilbert Scott, R.A.

APOTHECARIES' HALL.

WE are sure that it is due more to ignorance and want of thought than to any conscious vandalism that so much fatal injury is continually wrought to those older buildings in London which enshrine, not only so much of its history, but its dignity of architectural expression. Few, if any, citizens of London, were they asked if they would for a moment countenance the unnecessary mutilation of these old buildings, would oppose any such thing, both out of respect for what is their own patrimony, and for the feelings of those to whom these buildings mean so much. So that we feel sure that the Master of the Apothecaries' Company has no idea of the outrage it appears to those who know this grave-looking old Court near Ludgate Hill, and feel something of a lover's regard towards it, that any alterations of the building which can possibly be avoided should be in contemplation; and, that if undertaken, the best advice and the most considerate treatment should direct what is done. We are, therefore, hopeful that if it is brought to the knowledge of the Master that much harm is already done, or intended, he will reconsider the matter before taking any further steps.

Passing under the entrance archway into the solemn old Courtyard we see on the left of us that an alteration, in a most unsightly way, has already been made. We should like to know if a responsible architect was consulted on the provision of such a window as has now been inserted within the Court for new lavatory accommodation. And, after all, it was a simple enough matter. There is the original glazing of all the rest of the building as an example, and yet so little respect is felt for the place that this is entirely ignored, and a destestable-looking sashlight now defaces the building.

But this is, unfortunately, but a small part of the injury now in contemplation, we believe, to this fine old eighteenth century building. A portion of the original front to the street has been let, the Apothecaries' Company having removed one of their departments elsewhere. Inviolate until now, and retaining the charm of its homely, well-proportioned frontage, its characteristically-designed brickwork and windows, this building is, so we understand, to be altered to suit the requirements of the incoming tenants. We could wish, even at the loss of revenue, that an old building of such associations was valued highly enough by the Apothecaries' Company, to protect it from change, as part of their honourable traditions, which were more important to sustain than the importance of the profit to be derived through letting. If this cannot be, we trust that what is done will be carried out with reverent regard for the building as a whole; that as much as possible may be retained of its original character. From the point of view of the tenants who are to occupy so distinguished a building, there is also, if properly understood, a business advantage in retaining its old character. The distinction which is thus bestowed should be borne in mind by them. So that we can hardly credit the intention to remove away from its original site on the street front, into the interior of the Court, the delightful regalia, which we suppose to be the symbol of the ancient company of Apothecaries. This is represented by an oval panel, on which is a design in relief of symbolic character. We do not pretend to understand the legend, which might possibly represent health overcoming disease, or St. George and the Dragon, for there is a gracefully modelled figure astride of a black dragon, the former armed with bow and spear, in gilt on a black ground. Above the panel are heraldic emblems, a kingly vizor with mantlings surmounted by an interesting heraldic beast, and on either side, as supporters, horses with flowing manes project. To use such supporters the chief mercantile companies were entitled. We are concerned here with the vandalism of the contemplated removal of this regalia, and to urge on the new tenants the advantage to be derived in retaining on the front of their premises an emblem so artistic, so attractive, and of such long association with the building. And we also urge upon the Master of the Apothecaries' Company, the desirability of preserving intact this characteristic feature of their own valuable property. Just as we seek periodically our holiday amongst rural scenes and find rest in the change and quiet of the countryside, so the preservation of these old courts in their original character retain for us opportunities for a kind of retreat for the mind which finds rest from the hurry and pressure of affairs in the withdrawn and dignified quiet of their surroundings. London has suffered much loss already; much of it has happened through ignorance; not less from that ruthless commerical spirit whose values are unfortunately so often wrong. We are, fortunately, now less likely, in making an appeal for the preservation of the Apothecaries' Hall, to be answered by the arguments of expediency and immediate advantage. It is seen more and more that life cannot sustain itself within these more curtailed and selfish aims. It is realised that only in our capacity to value are we ourselves to be valued. We would be the last to make a fetish of the past or participate in that superstition about all things mediæval or since that time; for so ill-informed a respect is found often to accompany the most complete absence of appreciation of good work done in the present. The only sound estimate is that which enables us to judge rightly of both, and we can only intelligently recognise their value by building well ourselves. This is a better homage than flattery and adulation. If these Apothecary Hall buildings stand for traditions of building which include a real modesty of worth and an upright civic spirit, such building is infinitely precious to us, and this more enlightened regard for the past which is leading us to value our inheritance, will enable us also better to understand ourselves and so to value rightly. To this more enlightened national spirit we are feeling our way, and to lay hands lightly on such a building and disfigure it for commercial purposes is to set oneself against this better aim, and the whole current of the time. We do not, however, for one moment believe this to be the Master's intention, and that, when it is pointed out to him that there is grievous harm likely to be done to a fine building which it would be his first wish as Master to protect, he will consider, not only what is due to the traditions and character of such a building, but what also is due to civic responsibility and public spirit.



The Regalia to be Removed from above the Entrance to Apothecaries' Hall
From a sketch by MR. REGINALD HALLWARD.

Housing at Dudley.

At the Dudley Town Council last week a recommendation was adopted instructing the Housing Directors to prepare a lay-out plan for 50 or 60 houses on the Woodside site, to be forwarded to the Ministry of Health for approval.

HOUSING BETTERMENT.*

IT is always interesting to see ourselves as others see us, and we could have wished for a candid American opinion as to our housing activities, but, after all, the journal we notice is destined for the American reader, and to him it is more interesting to hear what we in England think about each other, especially as we are not always mutually complimentary. The journal aims at giving a full summary of the world's housing activities. Beginning with England, it works through to Jugo-Slavia, China, and Mexico, and, of course, it includes an account of the steps taken in various American States. One is reminded that the housing shortage is universal, that there is not a State or country in the world unaffected by it, and a survey of the world's activities cannot fail to to be useful in showing where other countries have failed, and what measures appear to promote success.

Americans are candidly and excusably amused at the spectacle of the citizens of London having to fight the "skyscraper evil." The champions of higher buildings in London emphatically deny that they are advocating "unrestricted tall buildings," but the description here given of the evils associated with the skyscraper clearly apply to all high buildings, and we are given the impression that Chicago, say, had the Americans at the time of its erection known as much about high buildings as they do now, would have been a city at least as low, if not lower, than London. The section devoted to the rejection of higher buildings for London ends in the following words:—"London is to be congratulated upon its wisdom in dealing with this problem so sanely and effectually."

Mr. Charles B. Ball, of the Chicago Health Dept., is responsible for some good definitions of zoning, of which the following are typical: "Zoning substitutes method for chance, symmetry for confusion, progression for patchwork, and order for chaos in city development. . . . Zoning infuses new life into dead neighborhoods by prescribing appropriate uses for the land." America labours under the same difficulty as we in overcoming apathy on the part of the general public; the need for effective propaganda is urgent in both countries. Ignorance is the greatest enemy to progress, and a journal of this kind, which covers a wide field and, at the same time, is not too technical, should be of value in disseminating knowledge of the benefits of town-planning and housing betterment.

Builder's Estate.

Mr. John Jarvis, Sandhurst Park, Tunbridge Wells, builder and contractor and sanitary engineer, who died on March 31, aged 70 years, left estate value £31,789.

* A Journal of Housing Advance. Issued quarterly by the National Housing Association, 105, East 22nd-street, New York City, April, 1922.

ANCIENT LIGHTS.

IN a recent case, Semon (Charles) & Co. *v.* Bradford Corporation (*Weekly Notes*, June 17), a somewhat new test appears to have been applied in determining what degree of light must be left for the ordinary use and enjoyment of premises. It was a *quia timet* action, that is to say, obstruction was only anticipated, and had not actually taken place. The plaintiffs' premises were a large warehouse in the centre of the business part of Bradford, used for the purposes of the woollen business, which, it was alleged, required a strong light. There were thirty-six windows in the warehouse, facing north on "B" street, which, it was alleged, had, for more than twenty years, enjoyed uninterrupted access of light from the horizon, save for a hoarding enclosing a vacant plot of ground upon which it was proposed to erect a building, seventy-three feet above the level of "B" street, which was forty-five feet wide. It was alleged by the plaintiffs that this building would so materially diminish the access of light to the eighteen windows on the ground, first, and second floors of their warehouse as to detract substantially from the beneficial use and occupation of the warehouse. The defendants conceded that the direct light reaching some four of the easterly windows on the ground and first floors would be intercepted, but not to such an extent as to create actionable interference with the plaintiffs' premises. The court only considered the obstruction of light to the windows at the east end of the building. The ground-floor windows were glazed with thick hammered glass, and were protected by iron grilles.

The court found that the plaintiffs' evidence had dealt solely with the amount of light intercepted, no consideration being given to the degree of light which would remain, and then referred to the evidence offered by the defendants, and especially to that of their chief expert. This is summarised in the report thus: "That it had recently been established that the ratio of light at any given point in a room to the sill light was constant, the sill light being the light available at the outside sill of the window from an unobstructed horizon. This percentage of light was termed 'the daylight factor.' In the case of public elementary schools there was a consensus of expert opinion that, in a room where young children worked, if the worst-lighted desk received 1 per cent. of the sill light the room was adequately lighted for the purpose of an ordinary public elementary school. For adult clerical work a room was adequately lighted so long as the illumination of the worst-lighted working point in the room did not fall below 0.4 of the sill light, the light being measured at three feet above the floor."

Applying that test to the present case the court found upon the evidence that if ordinary glass was substituted for the hammered glass on the ground floor of this building the daylight factor would be 1.5 or 1.6 per cent., very much above the average, and quite adequate for the requirements of ordinary people carrying on a business of this kind; in fact, it would be "an unusually well-lighted first floor." As regards the first floor, the evidence was that at the worst-lighted point the percentage would be 0.8, and at another point 1.54 per cent. The action failed, as the plaintiffs had not discharged the burden of showing an actionable nuisance would be caused by the defendants' building.

In cases concerning light there has always been a difficulty in determining the degree of obstruction, and the quantum of light left, and since the decision of the House of Lords in Colls *v.* Home and Colonial Stores, Ltd. (1904, A.C. 179), that the question is practically one of nuisance, substantial interference with the beneficial use and enjoyment of premises having to be established, the difficulty in proof has been increased rather than diminished since the old rule of a 45-degree angle has long altogether been displaced.

Could some rough-and-ready rule be established, even if litigation were not avoided, the cost of it might be diminished, as the number of expert witnesses might be reduced. Whether the "daylight factor" alluded to in this case can be applied with any certainty we do not know, but as it is calculated on the basis of the sill light, which apparently is the light available at the sill "from an unobstructed horizon," there still seems room for considerable conjecture leading to contradictory evidence. Neither do we express an opinion upon the adequacy of the percentages of light stated in this case to be sufficient. The question will, however, interest our readers, and they may care to express their views upon the points raised.

This case appears to have occupied some eleven days in hearing, and, at present, is only reported in the form of a head note. We may be able to refer to it in greater detail when the extended report appears.

THE FUTILITY OF SOCIETIES: WITH A THEORY OF DECORATION.

WE have received the following letter from Mr. James Guthrie, of Bognor:—

SIR,—As an obscure, but thoughtful, practitioner in the arts, I wish to raise a protest against the increase of useless societies. They all start in the same way, with one tolerably good motive, and attract a certain number of men who believe that there is strength in the assembly of wise counsels. Afterwards it is seen how the strong and the weak have no real combination: they are mutually destructive, the process of their elimination being marked by a dense cloud of theory and argument. My contention, if I may add my rainbow to the cloud, is that a working companionship between artist and architect is worth a thousand societies.

The local fact about my own work is a love of stencil decoration. It sounds a small, and even a tame, idea. At once the mind of the reader finds refuge among the immortals, because he doesn't share my love of, and respect for, this method of mine. I am bound to say it is exactly what happens when the obscure practitioner approaches a society, and that is exactly why societies are of such little use to him and what he stands for.

Mural pictures on walls are for looking at. They embody skill, learning and judgment of a very high grade, if they are good; if they are bad, in proportion to their size, they are a public nuisance, and should be removed. My different conception of ornament, carefully constructed from a few simple elements, has brought me to see that, while paintings on a wall are for looking at as objects of intermittent interest, ornament is the true background and environment of any public gathering.

In the presence, say, of "Moses reading the Law," by the artist who usually gets the work to do, it is only when we are curious about how the thing was done, and how variously and cleverly inattentive the audience must have been, that we crane our necks to scan the picture. In the better-judged, though less obviously ambitious, setting of decoration, we are ourselves part of the scheme, and are at liberty to rejoice easily in the picture that we help with our own presence to complete.

These matters are not to be laid before societies of art for approval; they are from experience in the proper atmosphere of work, inconvenient as they must look to the academic ambition which now, after many days, sees a whole land of promise where other men have laboured in advance. Yet I claim no exclusive plan. I pin myself down to no idea of refusing to paint pictures where they are called for. The instance only serves as an argument against the bad habits of societies of artists who sit firmly determined upon genius, as if genius were devoid of wit, and ardently anxious to be able to see as far through a brick wall as any other politicians

Mural painting, neglected by all but one body of artists, since Rossetti revived its true spirit of adventure, is now beheld through much clamour as everybody's child. Its native qualities, never shown except in their sort and situation, are about to be demonstrated fervently in the wrong way.

I can only advise that reader who happens to be young enough to see the fun of the thing, to see for himself what two colours can do on the wall of his own room. Yellow and blue on white is one theme, blue on yellow and yellow on blue are others, and there's still the mixture (green) to play with an interchange with his blue and yellow and white. I wish him joy of it; for if he cannot get any out of this immaculate theory of decoration, Moses and all his Laws are in vain, and artists won't help him to get either joy or work which he does not first get for himself.

RAILWAY CONTRACTS: "OWNER'S RISK" NOTES.

WE may note that the case Neilson *v.* London & North Western Railway Co., which we noted in full when heard in the Court of Appeal (*The Builder*, December 9), has been carried to the House of Lords, where the judgment has been affirmed (see *Weekly Notes*, May 20). It will be remembered that certain theatrical properties were to be conveyed from Llandudno to Bolton *via* Chester and Manchester by passenger train. A truck or brake van was provided for the goods, and they were carried on a contract absolving the Company from liability for loss, damage, misconveyance, misdelivery, delay or detention during any portion of the transit, or while left in the Company's possession to be stored, except upon proof that such loss, &c., arose from the wilful misconduct of the Company's servants. By a mistake the Company detached the van at Manchester, the labels on the van having become detached, and some of the goods were placed in the cloak-room whilst certain of them which bore old labels were sent to the various stations named thereon.

The House of Lords has now held, affirming the Court of Appeal, that the exemption from liability in the "owner's risk" note applied only during the transit upon the route contracted for, and when once the goods were diverted from the agreed route the protection ended.

In our former note we pointed out that, on the facts of this case, it was not quite clear from a short report of the case in the Court of Appeal whether the stopping short at a place on the route was the diversion of the goods or their subsequent distribution, though we indicated the former was probably the case as it would constitute a "deviation" in a contract for the carriage of goods by sea. This now appears clear, for Lord Buckmaster is reported as having said, "If the route were abandoned, whether it was due to oversight, ignorance, accident or design, equally the agreed transit was departed from, and the privileges the carrier enjoyed by contract during that transit ceased."

The case is of great importance, as it overrules a decision of some standing, Foster *v.* Great Western Railway Co. (1914, 2 K.B. 306), and when all the judgments delivered in the House of Lords are reported we may again refer to it.

WALL DECORATION.

We have received the following communication from Professor A. P. Laurie, Heriot-Watt College, Edinburgh :—

SIR,—May I be allowed to contribute something from the point of view of a chemist to your very interesting article on wall decoration ?

To begin at the beginning, the classical method of wall painting used by Raphael and Michelangelo was the laying of a pigment thinned with water on fresh surfaces of lime and trusting to the ultimate conversion of the lime into carbonate to bind the pigment. This technical method gave the required quality to the surface which made the decoration a part of the wall, and not merely a painting on the wall. The experience obtained by the decoration in true fresco of the Houses of Parliament proved conclusively that this technical process is quite unsuitable for the climatic conditions of our large towns, in which the acids due to the burning of the sulphur in the coal are present in large quantities. No doubt it would prove more durable in country districts, but the fact that the limestone of Canterbury Cathedral has been proved to contain large quantities of sulphate of lime on the surface shows the wide extent to which products of combustion of sulphur are distributed in this island.

At the time when the frescoes were painted in the Houses of Parliament the process which was receiving a good deal of attention was that of the use of water glass, with the view of binding the pigment by means of insoluble silicates, and some examples of this can be seen in the House of Lords ; they have certainly stood the test of time on the whole better than the genuine fresco, but have, I understand, been treated by the late Sir Arthur Church with preparations of paraffin wax, just as has been done with the examples of true fresco, the result being that, while these decorations have been preserved and while when looked at from the front they have the proper appearance of true fresco, when looked at from the side they have a certain shine upon the surface which is not tolerable, in my mind, in such wall decorations.

The next step was to try to depart entirely from such methods and replace them by the use of some kind of oil medium which would dry dead. The Gambier-Parry medium was the one which met with most favour, and examples of work, both painted on plaster and painted on canvas and then cemented on to the plaster, are to be seen in the frescoes by Madox Brown in the Town Hall, Manchester. I had the opportunity of examining these very carefully a short time ago, and I found that in the case of those frescoes which are painted directly on plaster the sulphur acids are beginning to attack the lime underneath the paint, causing efflorescence and the disintegration of the paint, and that in the case of those on canvas the paint is showing a tendency to separate from the canvas ground in certain cases.

To touch upon a purely æsthetic point, it seems to me that whatever may be the merits of the Gambier-Parry medium for durability, it does not really produce the effect of true fresco, as it has a certain shine when looked at from certain angles, and is merely a painting on the wall and not a part of the wall decoration itself. This is still more true when the painting is done on canvas, and the canvas fixed in position. In fact, in my opinion, it would be better frankly to regard such decoration as simply paintings suitably framed and placed as panels on a wall. One of the most successful of the modern experiments made in wall decoration was that carried out by Mrs. Traquair in Edinburgh in the Catholic Apostolic Church, where she painted on a zinc oxide ground laid on the plaster with oil and painted with oil colours thinned with turps and a little bees-wax, finally varnishing with a very thin coat of copal varnish, and finishing the whole by rubbing over with beeswax and turps so as to get an eggshell gloss. These decorations have stood the test of time remarkably well, but cannot be regarded as examples of true fresco, although having a fine decorative effect.

The distinguished German chemist, Professor Oswald, has suggested the use of pastels for wall decoration, finally fixing by spraying with the casein preparation. He regards this as permanent, and I do not know whether any experiments have been made in that direction by the artists in this country. Good effects can also be obtained with a fair chance of permanency by the use of Chinese wood oil in place of linseed oil as a medium, as this oil dries very dead and flat. I do not think this has been tried as yet by artists, although this oil is now being largely imported for the manufacture of what are called flat paints for the use of the house painter. I have suggested more than once to our artists' colourmen that pigments ground in Chinese wood oil would prove very useful to the artist, enabling him to get a mat surface without the objectionable features of adding wax and an excess of turpentine.

It seems to me, after this brief historical survey, that the first question which has to be decided is the kind of wall decoration we wish to obtain. We know from the accounts at Westminster and at Ely that the wall decoration in the thirteenth and fourteenth centuries was done with oil and varnish as the medium, and the result as far as one can judge must have been a frankly shiny surface.

The tests I have made on the tombs recently cleaned in Westminster Abbey confirm this historical evidence that oil was used as a medium. If, therefore, we are to accept northern tradition we should not be afraid of shiny oil surfaces for wall decoration in this country. If, however, we wish to obtain the decorative effect of the best period of Italian fresco painting, the decoration being part of the wall itself, I do not think we can accept a compromise like the use of the Gambier-Parry medium, or, what would be better, Chinese wood oil, and I am satisfied that there is no present method by which permanent wall decoration having the true character of genuine fresco can be produced in this country under present conditions.

It does not follow, however, that the problem is insoluble, and that the chemist may not be able to provide the artist with what he requires. Before discussing a possible medium, I wish to take up the question of the ground, and here I wish to ask the experience of architects. It seems to me the height of folly to use lime ground which must inevitably be attacked by the sulphur acids in the air converting the lime into sulphate of lime when we might begin by having a plaster of Paris ground in which the lime is already present as sulphate, and, therefore, will not be attacked by sulphur acids. The use of lime grounds seems to be owing to the following of the old tradition of genuine fresco, and, of course, is essential where the chemical properties of the lime are required to bind the pigments by the action of the carbonic acid of the air, or by the action of the water glass in the case of water glass painting, but where other mediums are being used it seems to me that the obvious plan is to paint on a plaster of Paris surface. There may be objections as to the durability of plaster of Paris and the cracking of plaster of Paris surfaces, of which I am not aware, and it is for that reason I wish to appeal to the architects on this question of using plaster of Paris as the ground for wall decoration, where the medium used does not require the chemical combination of lime. It is evident that any required quality of surface can be obtained by mixing sand with the plaster of Paris.

I hope, when this question has been thoroughly cleared up as to the properties of plaster of Paris, to go further into the question of the medium that should be used on such a plaster surface.

BOOK REVIEWS.

Tests on Ranges and Cooking Appliances.— By A. H. BARKER, B.A., B.Sc. Special Report No. 4 of the Department of Scientific and Industrial Research. Fuel Research Board. (London : H.M. Stationery Office.) Price 2s. 6d. net.

This report gives the results of investigations as to the most efficient and economical methods of cooking and providing a hot-water service, and it also indicates the relative values of different classes of fuel. It is supplemented by tables, illustrations of testing apparatus, and by a set of graphical diagrams. A discussion on the results obtained will be found in our leading article.

Down Thames Street. By MARK ROGERS, R.B.S. (London : Robert Scott). Price 25s. net.

"Down Thames Street" belongs to a class of literature that should be welcomed by all lovers of architecture, for it is by books of this description that laymen are induced to take their first steps towards the study of our historical monuments. The works of Sir Christopher Wren and Grinling Gibbons are illustrated in many of the author's pen and ink sketches, and are referred to on several pages of the book. Another notable artist, Henry Ivelegh, the Master of the King's Works in the reign of Richard II, is mentioned in connection with the designing of an aisle to St. Dunstan's-in-the-East. In view of the frequent statements that the office of "architect" was unknown in Gothic times, it is interesting to find a contract agreement binding the builder to work in accordance with the design of a third party in 1381. It may be regretted that the title "master" or "mestre" was ever abandoned in favour of a term embodying a "ch" whose pronunciation is a pitfall to the uninitiated, but the design of buildings (whether in the Gothic or any other period) is a separate art demanding qualities of imagination and composition which must be cultivated by long and special study on the part of someone, whether he be called "master" or "architect." Chaucer, Shakespeare, Pepys, and a host of minor historical personages are introduced into the pages by their association with inscriptions in, or traditions concerning, the different churches which were once the centres of busy parochial activities, though now left derelict in some cases by the custom of living in the suburbs instead of over the business house. To a Londoner of the present day, Thames-street seems but one street among many, but its importance in the days when London was a walled city was out of all proportion to its length. It was, in fact, a port for sea-going ships which came up to its wharves of Beling's Gate and Queen's Hithe, though the timber drawbridge of old London Bridge had to be opened for ships with "tops" to reach this up-river berth. Rather than suffer the inconvenience of waiting for the drawbridge, ships were content to put in at Billingsgate, in spite of a fine of forty shillings. Queen's Hithe waned in importance, though Billingsgate remains a port for sea-going ships at the present time.

The book should do something to stimulate the interest of the Londoner in his own city, and it will certainly be sought after by American visitors since it describes just those aspects of our old-world Metropolis which differ most fundamentally from their own great modern cities and which, therefore, have for them all the charm of novelty.

BOOKS RECEIVED.

GARCKE & FELLS' FACTORY ACCOUNTS. By J. M. Fells. (London : Crosby Lockwood & Son.) Price 15s. net.

THE ALL-ELECTRIC AGE. By A. G. Whyte. (London : Constable & Co., Ltd.). Price 7s. 6d. General News.

MANUALE D'ARTE DECORATIVA ANTICA E MODERNA. Third edition. By Di Alfredo Melani. (Milano : Ulrico Hopeli.) L.32.

ELECTRIC LIFT EQUIPMENT FOR MODERN BUILDINGS.—IV.

BY RONALD GRIERSON, A.M.I.E.E., A.M.I.Mech.E.

SHAFTS AND SHAFT DETAILS (*Contd.*); ARRANGEMENT OF GUIDE AND COUNTERWEIGHT RAILS; LANDING DOORS; ROPING.

Shafts and Shaft Details.

LIFT shafts are, according to circumstances, built in glazed brick, faced with glazed tiles, plastered, or merely left in brick and whitewashed or distempered. Black is a very satisfactory "colour" for unplastered brickwork, as the inequalities are not made as prominent as when whitewash is used.

Projections into the lift shaft should be avoided wherever possible, but where absolutely unavoidable they should not be made sharp, but should be bevelled off at a slight angle (Fig. 25).

For installations in which the engine is situated below the shaft, and overhead sheaves or wheels are necessary to lead the ropes to the car and to the counterbalance weights, American regulations and specifications almost invariably call for a substantial grating of iron or steel, to be fixed immediately below the overhead sheaves, having not more than 1½ in. space between any two members. As the grating for overhaul and repair work will have to sustain the weight of several men, tools, &c., the rated loading is usually figured at 75 lbs. per sq. ft.; 2 in. pierced channels or 1½ in. by ⅜ in. flat bars with spool or corrugated bar separators being utilised to form it. Drip pans, constructed of 26 s.w.g. galvanised iron, should be provided for all bearings to prevent any oil dripping down the shaft and into or on to the car.

For enclosed lift shafts, American regulations also frequently call for glass skylights set in iron frames, to be fixed, having an area at least equal to three-fourths that of the shaft. Wire glass is usually prohibited, owing to the difficulty of fire forcing its way through the skylight.

Strictly speaking, from the service point of view the size of the shaft should be determined after the car passenger capacity required has been calculated, but more frequently probably the shaft size is first ascertained and a car is then designed to suit the shaft without reference to the traffic schedule. Assuming the correct method is adopted, the size of the car having been determined, the shaft dimensions will depend on the arrangement of the guides and counterbalance weight.

The majority of lift engineers will probably agree that the arrangement of steel side guide rails for the car with the counterweight running at the back of the car, also on steel guide rails, provides the most satisfactory scheme. There are many cases, however, where this design cannot be adopted, and, under these circumstances, other schemes are frequently found to be necessary (Fig. 24).

TABLE OF CAR DIMENSIONS (approximate only).

Detail No.	1	2	3	4
Car width ..	A-9in.	A-14	A-9	A-4
Car depth ..	B-9in.	B-4	B-4	B-9

A = Width of shaft.
B = Depth of shaft (back to front).

The figures given in the table must be regarded as approximate only, as variations may be necessary when the engine is placed at the bottom of the well (requiring room for ropes), for excessively large counterbalance weights, for large cars, and for special landing door and indicating gear.

Many lift engineers consider it good practice to keep the front of the car 1½ in. away from the entrance threshold, and to use saddle projections from one-half to one inch beyond the finished line of the shaft at each landing. By this means it is possible to make good any unevenness in the shaft (a condition which is likely to occur during the course of the erection of the building), by plumbing the saddles and thus standardising the width of the space between the landing floor and the car threshold (Fig. 25). (In a recent case, on one of the writer's jobs, a 60 ft. shaft was found to vary 2½ in. from the plumb-line in two places!)

Details relating to guide rail fixings can be compared with the chairs and sleepers of ordinary railway practice, and in lift engineering the design adopted depends rather more on the local conditions relating to shaft design and construction than on the type of rail used.

Hitherto, English practice has favoured round steel guide rails with or without wood backing;

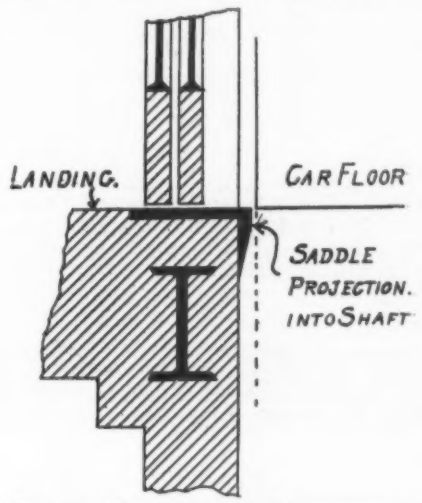


FIG. 25.—FLOOR SADDLE PROJECTION.
[Note flare or bevel.]

and for this type, assuming a brick shaft, wood bricks, 9 in. by 4½ in. by 3 in., cemented into the wall at vertical intervals of 6 ft., have been extensively used.

As the wood backing has been gradually dropped, due to development in the design of the safety gear, the steel guide rails have, in certain cases, been secured direct to the wall by rag bolts, or to steel joists by means of bolts and plates (Fig. 26, A and B).

To provide space for ropes, &c., between the car and the walls of the shaft, brackets are frequently found to be necessary, both for the car and also the counterweight guide rails fixings (Fig. 26 D).

Landing Doors.

Very little attention has been devoted to the design of landing doors in this country, either the collapsible steel gate, the single, or the double folding door being almost exclusively used. These types, although more or less satisfactory for single slow speed installations in low buildings, are excessive time wasters, and for high buildings, in which high speed vertical transportation of passengers is of prime importance, new designs have been developed.

In designing a lift shaft, careful consideration should be given to the size and type of door which is best adapted to the particular installation in view, a suitable width being provided to make loading and unloading as free as possible.

In locating landing doors, consideration should be paid to the desirability of arranging for the car attendant to handle the car controller with his *left* hand and open and close the doors with his *right* hand, the doors sliding from right to left to open.

The landing door should be as light in weight as possible and be placed as close as possible to the shaft, so that there is no necessity for the operator to leave the controller in order to operate the door.

The minimum width of opening is usually regarded as two feet six inches and the standard height as seven feet. Mr. R. P. Bolton, in "Elevator Service," emphasises the desirability of definitely providing a space in the car for the attendant or operator, and therefore recommends that the landing and car doors should be two-thirds the width of the car. This proposal apparently conflicts with the recommendation made above for free ingress and egress, but since

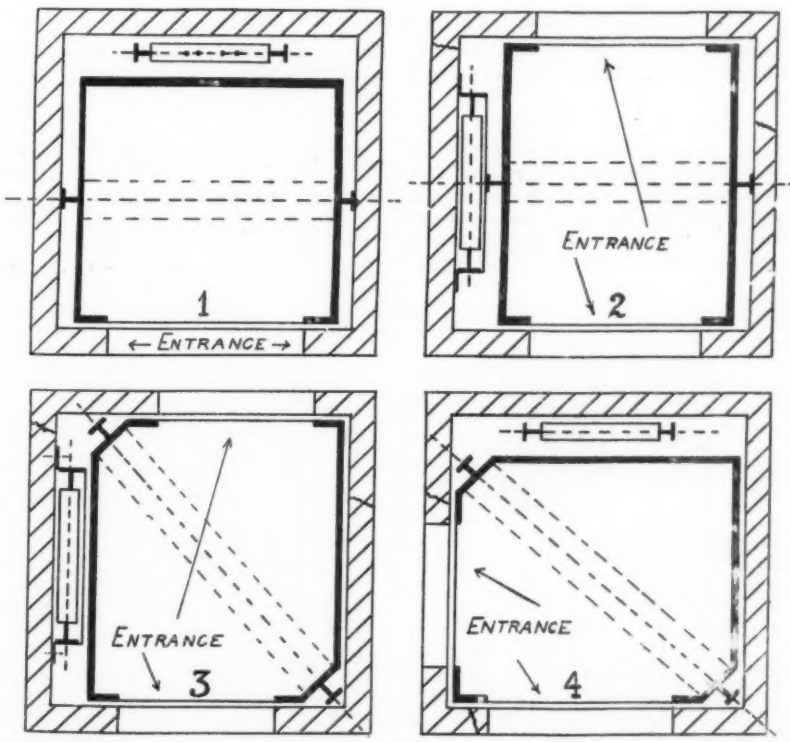


FIG. 24.—ARRANGEMENTS OF CAR GUIDE-RAIL AND COUNTERBALANCE WEIGHTS.
[(1)—Car guide-rails at side and counterbalance weight at back (one entrance); (2) car guide-rails and counterbalance weight at side (two entrances, straight through); (3) cross-corner guide-rails for car with counterbalance weight at side (two entrances, straight through); (4) cross-corner guide-rails for car with counterbalance weight at back (two entrances at right angles).]

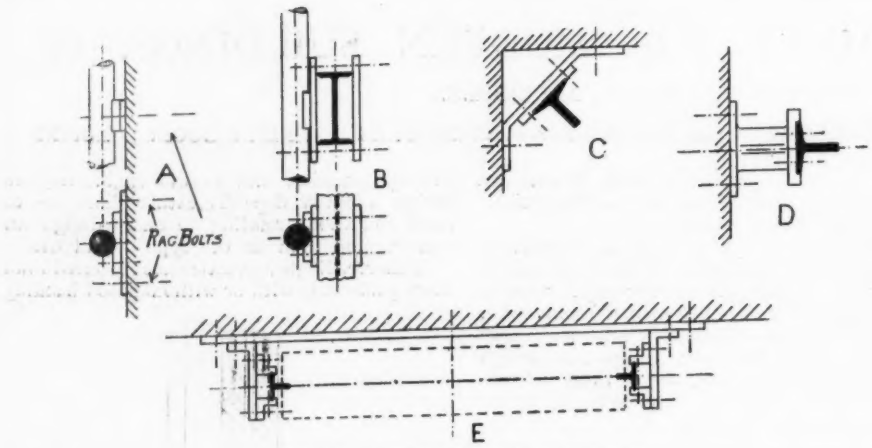


FIG. 26.—STEEL GUIDE-RAIL FIXINGS.

[A.—Round steel guides, with cast-iron palms, secured to wall with rag bolts; B.—Round steel guides, with cast-iron palms, secured to rolled steel joists; C.—Cross-corner type T-steel guide-rail secured to wall by wrot-iron bracket and rag bolts; D.—T-steel guide rails, secured to wall by rag bolts and spaced therefrom by cast-iron distance pieces; E.—T-steel guide-rail fixings for counterbalance weight.]

the operator should not waste time in leaving the car at the landings and would therefore obstruct the entrance in any case, the advantages, it is thought, outweigh the disadvantages (Fig. 27).

deep, for with these allowances it is practically impossible for a door to jump the grooves.

Double doors, sliding in the same direction, are possibly the best form for general use where

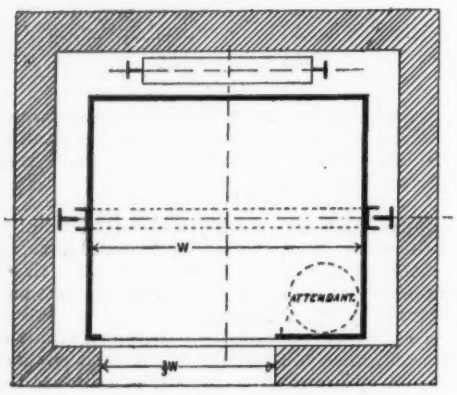


FIG. 27.—RELATIVE WIDTH OF LANDING AND CAR ENTRANCES.

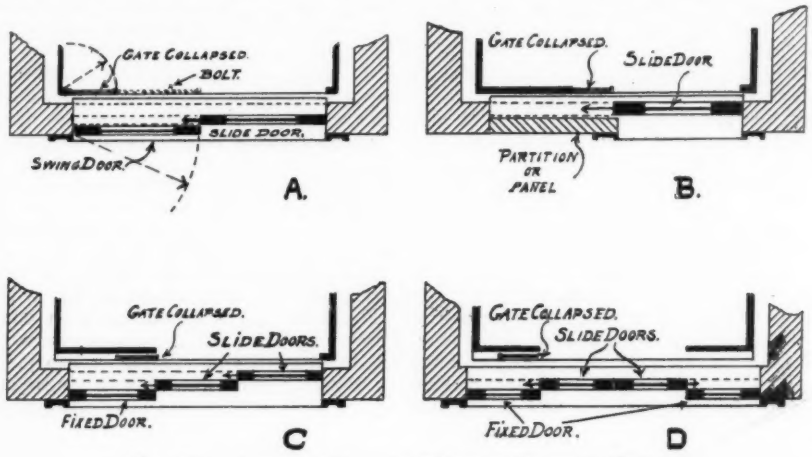


FIG. 28.—ARRANGEMENT OF MODERN LANDING DOORS.

[A.—Combination slide and swing doors; B.—Single slide door; C.—Double doors sliding in the same direction; D.—Double doors sliding in opposite directions.]

The principal types of landing doors for modern passenger lifts are shown in Fig. 28.

Doors of the types illustrated have the advantage over single and double swing doors ordinarily used in England, that air pressure (caused by a high-speed car moving in a closed shaft) has no tendency to open them, should the latch be insecurely fastened.

The combination slide and swing is useful in flats and office buildings, since it is specially adapted to both passenger and goods service. Normally only the sliding door is used, but, should packing-cases, safes, trunks, &c., have to be handled, then the swing door in addition to the sliding door can also be opened. In this case the top steel rail which carries the sliding door would be fixed to the swinging door, and arrangements would have to be made whereby the pins of the sliding door, which engage in the floor groove, could be thrown out of action when the swing door is opened (Fig. 28 A).

Single slide doors are, of course, cheaper than the combination slide and swing door and are suitable for narrow cars used exclusively for passenger services. The left-hand section can either be made a stationary panel, or a partition can be built up in place of the stationary doors or panels (Fig. 28 B). The door is usually 1½ in. thick and there is a ½ in. clearance between the door and the stationary panel or partition. Twelve inches should be provided above the door to take the steel rail and wheels. The grooves in the sills should be ½ in. wide, and ¾ in.

the necessary space can be obtained. Very careful consideration must be given to this type, in designing the landing doorways. As space must be provided for two doors, and the fixed partition or panel, plus the clearance spaces required between the first and second doors, and the second door and the fixed panel or partition (Fig. 28 C).

Devices are now available whereby the one-door travels at twice the speed of the other, so that both will be fully open or shut together. The space and clearances required are similar to those given for single slide doors.

Double doors, sliding in opposite directions, are regarded as more symmetrical in appearance and operation, but further restrict the ingress and egress to the car. They are, therefore, not so popular for high-speed work, but require less space than the double doors sliding in the same direction. Both doors should be mechanically interconnected so that they both move the same distance, either in opening or closing by the operation of either door. It is desirable to design the doors and the panels, if space permits, so that the fixed panels are at least equal to, and preferably greater in width than, the doors, which slide behind them (Fig. 28 D).

Needless to say, for efficient service, the hardware used on the doors should be as accessible and as free in operation as possible. Inaccessible and stiff door fastenings will cause serious delay during the course of a day. If desired, sliding doors can be made self-closing by fixing the running rails slightly out of the horizontal. In any case, rubber bumpers should be provided at the top and at the bottom of the doors to take the jar both in opening and closing.

U.S.A. regulations specify that when lights are required in landing doors, wire glass *must* be used, the area of any one pane being restricted to five feet super.

Pneumatic door operating devices can be fitted to any type of landing door, where funds are available, but additional space is required

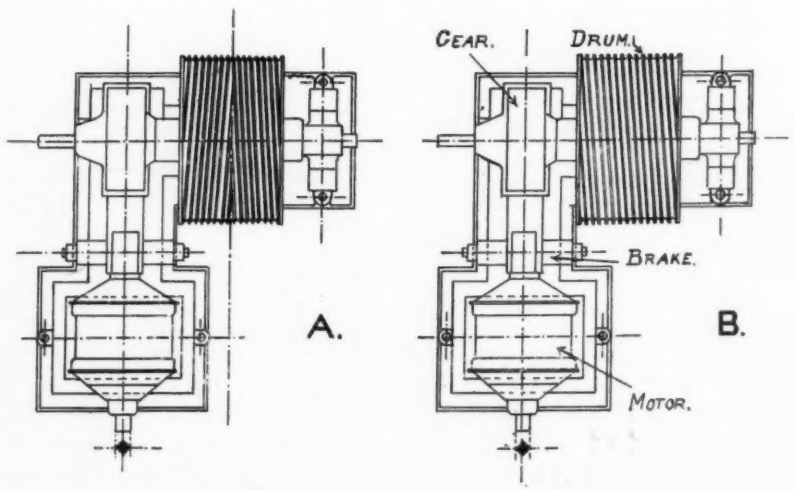


FIG. 30.—TYPES OF WINDING DRUMS.

[A.—Grooved from flange to centre (engines overhead);
B.—Grooved from flange to flange (engine below).]

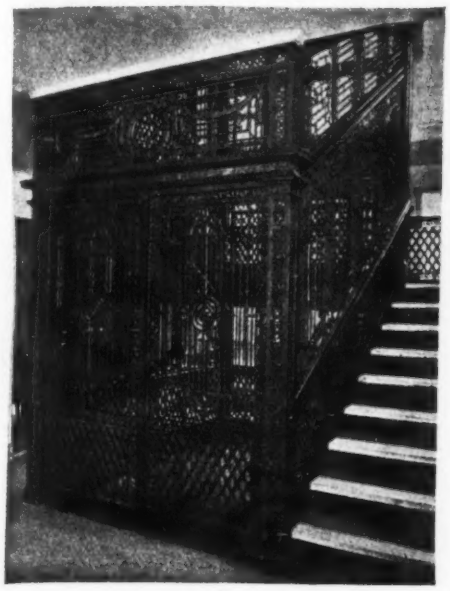


FIG. 29A.—A MODERN LANDING DOOR.
Messrs. N. LE BRUN & SONS, Architects.

and details should be carefully investigated where it is decided to adopt them. The pressure usually adopted is 25 lbs. per square inch, and electrically operated compressors are necessary. Specifications usually call for the operating devices to be of the non-adjustable type, without packing glands, and to be arranged to cushion the doors on both the opening and closing motions.

The general design of the doors or gates and their treatment falls outside the engineer's province and these details are not therefore described, but attention is directed to the desirability of providing glazed panels to avoid accidents and of considering the question of signalling devices, direction indicators, &c., at an early date and incorporating them in the design. These items of equipment will be described later.

Roping.

Under this section it is intended to describe the various methods adopted for driving the

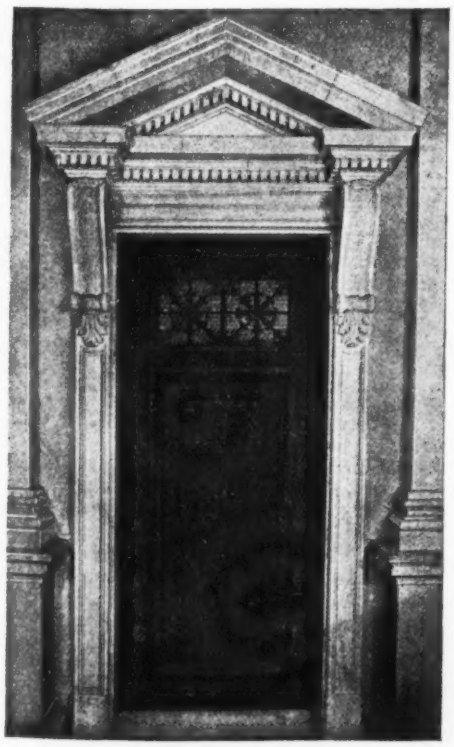


FIG. 29C.—A MODERN LANDING DOOR.
Messrs. N. LE BRUN & SONS, Architects.

ropes, and hence of lowering and raising the car or load, and of connecting the car to the counterweight.

The main classifications adopted for the drive are:—

(*a*) Drum drive.

(*b*) Vee sheave or half wrap traction.

(*c*) Crossover or full wrap traction.

In either case, the drum or vee sheave is connected either directly or indirectly to a motor shaft, but the actual details will be discussed later in connection with winding engines. The drum drive is the most obvious and was the earliest method employed to lift the car or platform. In this type, both car and counterweight cables are positively attached to the drum, in a manner such that while the car cables are being wound up the counterweight cables are being unwound, and vice versa. Practically it is only possible to provide space for four ropes on the drum (*i.e.*, two for the counterweight and two for the car), and since the minimum diameter of the drum is fixed by the diameter of the rope employed (which must be relatively large for heavy loads due to the restriction in number), the length of drum which must be employed is fixed by the total travel of the car. Obviously, therefore, drum drives are unsuitable for high buildings (ten floors are approximately the maximum) and are inconvenient in many cases for combinations of moderate travels and heavy loads, even when two ropes only are used for the car. Further, it will be noted that almost every installation calls for a special drum to meet the special requirements, which enhances manufacturing costs.

Drums, which should always be supported between two bearings, are provided with two spirally cut U-shaped grooves, accurately machined for the size of rope employed and designed fully to support one-third of the rope's diameter, although the depth is frequently restricted to $\frac{3}{16}$-inch to avoid excessive thickness of metal which would otherwise be required in the barrel or drum.

According to circumstances, the grooves start from the ends of the drum, one groove on each

FIG. 29B.—A MODERN LANDING DOOR.
Messrs. DELANO & ALDRICH, Architects.

clearance of approximately $\frac{1}{16}$ in. between the different turns of cable.

If a leading sheave is required near the drum, as is almost invariably the case when the winding engine is located at the bottom of the shaft, it must be of the travelling or vibratory type, due to the travel of the ropes laterally along the drum. This additional complication is a further factor adversely affecting the life

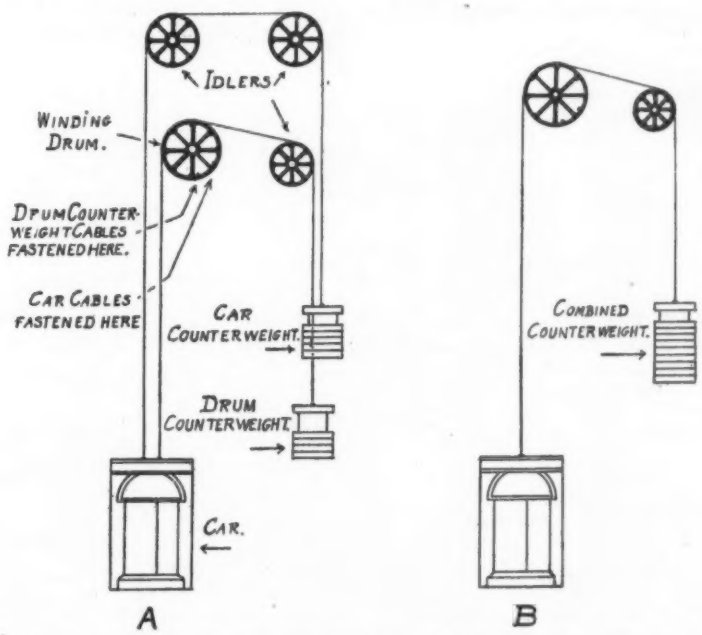


FIG. 31.—TYPICAL ROPING FOR OVERHEAD DRUM TYPE LIFTS.
[A.—American; B.—English.]

side (right and left-handed spirals) and lead towards one another until they meet at the centre (winding engine overhead) (Fig. 30 A). In other cases, the grooves run in pairs from one end of the drum to the other, left or right-hand spirals being employed as found most convenient (winding engine below) (Fig. 30 B). The pitch of the grooves employed for a pair of $\frac{5}{8}$-in. ropes would be $1\frac{3}{8}$-ins. and for a pair of $\frac{3}{4}$ in. ropes it would be $1\frac{5}{8}$ ins., thus giving a

of the ropes, as it frequently introduces an "S" bend into the rope lead, thus shortening its life, and also, in the absence of a straight lead, side pressure and friction is produced between drum and sheave grooves and the ropes.

In addition to the objections to the drum drive, enumerated above, there remain the facts that, with the car and counterweights positively attached to the drum:—A. Should the brake fail to hold, and the motor (due to

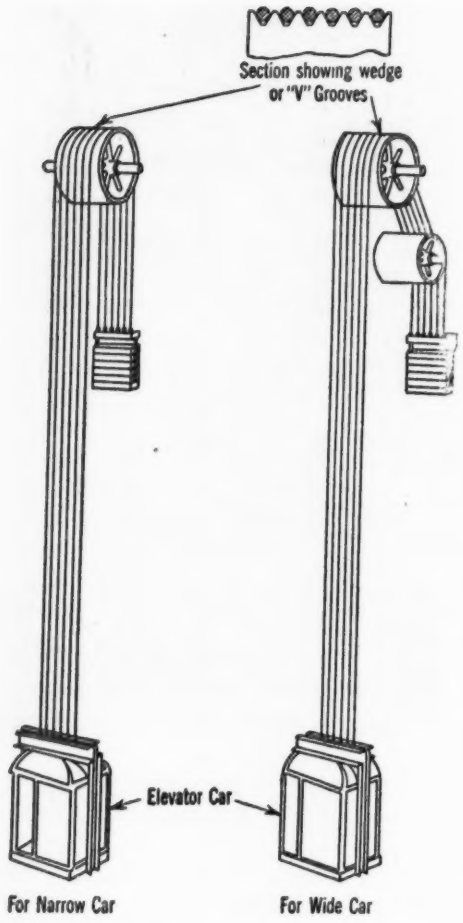


FIG. 32.—TYPICAL ROPING FOR OVERHEAD HALF-WRAP TRACTION OR VEE-SHEAVE LIFTS.

inattention) continue to run even for a second longer than intended, therei grave risk of the car or the counterweight being dragged through the roof.

B. When the lift is running in the downward direction, should the car, for any reason, hold up in the shaft, the engine will continue to unwind the cable, and should the obstruction or hold up be only of a temporary character, there would be considerable risk of the sudden descent of the car. To avoid an accident of this type, slack cable safety devices have been designed and are installed on drum drives, which cut off the main supply to the motor immediately tension is removed, either from the car or the counter-weight ropes. (Discussed in detail later under "Safety Devices.")

English makers almost invariably use two sets of ropes, *i.e.*, drum to car and drum to counterweight—so that there is no direct connection between the car and the counterweight (Fig. 31B). American manufacturers, on the other hand, just as frequently, and especially for large car installations, to reduce the load on the drum and drum bearings, use three sets of ropes, *i.e.*, drum to car, drum to counterweight, and car to counterweight direct, two sets of counterweights being used. The counterweight which is connected direct to the drum, termed the drum counterweight, is designed to offset a certain percentage of the passenger load (usually 40 per cent. of the car capacity), and the other (termed the car counterweight) is designed to counterbalance the dead load—car, sling, safety gear, &c. (Fig. 31A).

Due to the objections mentioned in connection with drum drives, a new method of driving the ropes has been evolved, termed the Vees heave, or traction drive. In its simple form the wide-faced drum is replaced by a sheave, not more than twelve inches in width across the face, provided with from four to twelve grooves, which are no longer spiral and U-shaped, but are separate and V-shaped, and drive the ropes, which are not permitted to bed on the bottom, by means of the frictional contact between the upper faces of the groove and the rope—hence the name *traction drive*.

With this type of drive the risk of over winding practically disappears, since either the car or the counterweight eventually lands upon the buffers and—the tension being removed from the ropes—the driving sheave can continue to revolve without anything serious happening. Similarly, should the descending car be held up in the shaft for any reason, the tension on the ropes will be removed and the slack rope safety device, fitted to all drum drives, is, therefore, unnecessary (Fig. 32).

The only real objection which can be advanced against the traction drive, apart from groove wear, is rope slip in connection with large cars, due to inaccurate counter-balancing, or excessively rapid acceleration or retardation, or the excessive use of oil on ropes.

Previously the "half wrap" traction, *i.e.*, an arc of contact of 180 degs. or less, depending on the depth of the car, between the sheave and the rope, has been described; but, in certain cases, it is desirable to arrange for a "full wrap," or "crossover" drive. This actually consists of two half wraps, or a total arc of contact of approximately 360 degs., between the rope and the sheave. The full wrap is obtained by adding an idler sheave (*i.e.*, a sheave which is not connected to the motor), fixed either above or below the main sheave, depending on the position of the engine, and having its axis set at a slight angle to the main shaft, so that the ropes are led off the first set of grooves on the driving sheave to the grooves on the idler sheave and back to the main sheave, *i.e.*, twice round the main sheave and once round the idler. Frequently, before leading into the shaft, the ropes are deflected by the idler, in order to lead them plumb over the car, or over the counterbalance weight, or into the shaft, as the case may be (Figs. 33A, B & C). In full wrap traction or crossover drives, some makers adhere to the V-shaped grooves, but the majority prefer the parallel side U groove, and claim that it is possible to place a load in the car equal to twice that of the counterweight without the ropes slipping over the driving sheave. One possible objection to this type of drive is that the driving sheave is required to take double load, due to the double wrap necessary in this design which results in reduced efficiency.

In certain instances, gearless winding engines are used, *i.e.*, the driving sheave is mounted directly on the motor shaft. Obviously, this involves an excessively slow speed and correspondingly expensive motor of large size. If the system of roping shown in Fig. 33D, termed "two-to-one" (as opposed to one-to-one roping shown in Figs. 33A, B & C), is utilised it is possible to instal a higher speed, cheaper, smaller, and lighter motor. This type is used for large cars and speeds between 400 and 500 ft. per minute. It is smooth and quiet in operation, and has recently been designed in the half-wrap or Vee sheave form, which has the effect of reducing the number of ropebends from ten to six, thereby extending the useful life of the rope.

[The author desires to express his appreciation for the assistance rendered by H. R. Cullmer ("Elevator Shaft Construction"), for assistance in preparing Figs. 25, 28 & 92; to J. H. Jallings ("Elevators"), for Fig. 26; to R. P. Bolton ("Elevator Service"), for Fig. 27; to Messrs. The Kaestner and Hecht Company, of Chicago, for Fig. 30; to H. P. Reed and the American Institution of Electrical Engineers, for Figs. 31, 32 & 33.]

(To be continued.)

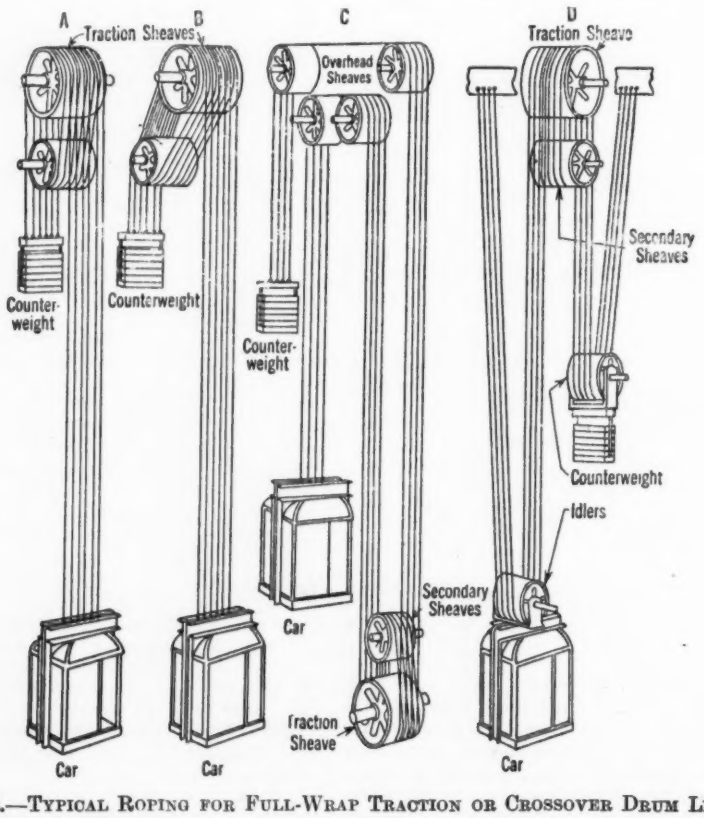


FIG. 33.—TYPICAL ROPING FOR FULL-WRAP TRACTION OR CROSSOVER DRUM LIFTS.

[A.—Engine above, roped one to one; B.—Ditto with idler set-off for deep car; C.—Engine below, roped one to one; D.—Engine above, roped two to one.]

We have received *Kelly's Directory of Merchants, Manufacturers and Shippers of the World* for the year 1922 (London: Kelly's Directories, Ltd., price 64s.), which is the thirty-sixth annual edition of this exhaustive publication. The book, which is in two divisions, deals first with foreign countries and their dependencies, and second with England, Scotland, Ireland, Wales, and British Dominions and Possessions. The two volumes consist of some 5,000 pages, and under each town heading, classified and alphabetically-arranged lists are given of all those engaged in trade, with the class of goods in which they deal. Indexed in four languages, the very complete information, which has been thoroughly revised and brought up to date, is instantly accessible to the reader.

THE WEEK IN PARLIAMENT.

WESTMINSTER, *Wednesday.*

The Government's Housing Plans.

During the debate on a Vote of £13,512,562 for Salaries and Expenses of the Ministry of Health, Sir A. Mond said that he had been able to effect reductions in the year's estimates of £1,732,000. The gross saving on administration expenditure was no less than £863,000. A considerable amount of this saving was due to two large items—a reduction in the very large and expensive staff and in the big housing programme involved. With regard to the general housing position, he said that the number of houses authorised to be erected by local authorities and public utility societies on May 26 was 173,600, leaving a margin in hand not yet allocated of 2,400. The number of houses completed on May 1 was 107,661; under construction 47,100; and still to be started 21,237. Private builders: number of houses finished, 32,928; outstanding certificates (A), 9,586; total housing provision already made, 140,589; houses authorised, 77,925. In May, 1921, a non-parlour house with three bedrooms cost £697. In November, 1921, it cost £577, and in May, 1922, the cost had come down to £384. In the case of parlour houses with three bedrooms the cost in May, 1921, was £830. In November, 1921, it was £660, and in May, 1922, it was £400. A year ago the lowest figure approved for a house with three bedrooms was £603, and the lowest tender recently obtained was £298. If land and other charges were included the latter figure would be increased to £380. From these figures it would be seen that they were likely to reach, although they had not already reached, an economic level of houses. There was no reason to suppose that the cost had reached as yet its bottom. One thing of which he was convinced was that, however careful they were, the State was not a cheap builder. Even local authorities, building on their own account, would get better and cheaper results than a Government department. Private enterprise certainly was doing it at lower prices and could find labour ready to take lower wages for that work than was possible in the case of a Government Department. They were almost in a market where private enterprise could be taken as on the way to resume its normal position. It was necessary to make up one's mind how far private enterprise could come in, and how rapidly, in order to take up its proper function, or how far one could afford, or ought, by a system of artificial subsidies, to keep up the prices and produce artificial conditions in reference to the cost of houses. Nothing was more certain than that a policy of restriction had produced a condition of things which was almost helping the problem to solve itself.

He held very strongly that it was the function of large employers of labour to deal with the housing of their employees.

He was proposing to assist local authorities in utilising the sites already developed, or in disposing of them to private builders, so as to stimulate building by private enterprise. The question whether or not there should be exempted from local rating for a number of years houses that were built under proper conditions was not unworthy of consideration.

In the discussion which followed, Mr. T. Thomson moved to reduce the vote by £100. He submitted that it was "a penny wise and pound foolish" poliey to call a halt in the housing programme now.

Mr. Lorden said that it was the fault of the working man that more houses had not been built. If he had only put his shoulder to the wheel in 1918 and 1919 he could have maintained his high wages, houses would not have cost nearly as much, and there would have been more houses to go round. He did not agree that they were coming near the time when houses could be produced economically. He urged the Minister of Health to adopt the suggestion of the Geddes Committee and get rid of State-aided houses, even if he gave them away! Anybody who had practical knowledge could see what was going to happen in the near future with the huge amounts which would become necessary for repairs. Going through the country, he saw repairs already being executed on houses built under these fantastic schemes. Had the houses been built of good, plain solid brick they would have lasted many years, but they had been put up with all kinds of material, and many of them would last but a few years. If, in twenty years' time, it was not necessary to rebuild a large number of them, then he knew nothing about building. They would become slum property; they would fall to pieces. That was why he was pressing the Minister to get rid of them at all costs.

The debate was adjourned.

Law of Property Bill.

During the discussion on the Law of Property Bill, which has now passed its third reading, Sir J. Butcher moved to leave out the following section of Clause 64 (Application of Capital Money), "Capital money may, after the commencement of this Act, be applied in financing any person who may have agreed to take a lease or grant for building purposes of the settled land, or any part thereof, by making advances to him in the usual manner on the security of an equitable mortgage of his building agreement." He said that, as the clause stood, capital moneys arising out of the sale of an estate, or any part of it, might be applied in financing builders. That was a most dangerous thing to do.

Sir L. Scott, the Solicitor-General, in resisting the amendment, said that the tenant for life, in seeking to apply capital money for building purposes, was in a fundamentally different position to the man who was financing a builder for building on somebody else's land. In this case, the building was being done on his own land, thus increasing the value of his land, and if the builder went bankrupt he would forfeit any unpaid instalments that had not accrued due, and any advance in the value of the land would go to the benefit of the estate. In the case where failures had occurred, they had been financing builders who had been building on land belonging to somebody else.

The amendment to leave out the section was negatived.

Garston Housing Scheme.

Replying to questions regarding overpayment of £300,000 by the Liverpool Corporation to the Garston housing scheme contractors, Sir A. Mond said he was aware of the fact of this overpayment and he had given directions for a public enquiry into it by the Inspector of Audits for the district, which opens on the 19th inst

Timber from Canada.

Mrs. Wintringham asked the President of the Board of Trade if 15,000 standards of spruce lying in Canada and belonging to this country had been sold to a firm of London timber importers; if so, what was the price per standard paid for the wood and how did it compare with the prevailing market value; and was any attempt made by the Government to obtain any better price after the offer had been received from the purchaser?

Sir W. Mitchell Thomson said that approximately 10,000 standards of spruce lying in Canada had been sold to a firm of London timber importers, who had intimated their intention to exercise an option given to them to purchase a further 5,000 standards. In accordance with the invariable rule in such cases, he was not prepared to disclose the price of sale. There was no timber of comparable quality in the market. The offer was closed with upon expert advice.

Post-Office Building Programme.

Mr. Kellaway, the Postmaster-General, stated that, with regard to the telephone system, there was still a very heavy programme of building work to be carried out in the near future, owing to the exhaustion of many exchanges, and the approaching exhaustion of others. During the current financial year it was propospd to acquire sites for three new exchanges in the centre of London, about fifteen in the suburbs, and about ninety in the provinces, including Scotland and Wales. It was proposed to begin building works in connection with about twenty-five exchanges in London and about eighty new or enlarged exchanges in the provinces.

HOUSING AND TOWN-PLANNING NOTES.

Housing Progress in Scotland.

The following figures show the progress that has been made in State-aided housing schemes in Scotland to May 31st, 1922:—Permanent houses completed, 8,671; temporary, 665; reconstructed houses completed, 89; houses completed under the Private Subsidy Schemes, 1,672; total, 11,097. There are 9,322 houses at present under construction in connection with housing schemes carried out by local authorities and public utility societies. The total amount paid by the Scottish Board of Health in respect of the 1,672 houses completed under the private subsidy schemes is £403,829.

Average Prices of May Tenders for Houses.

Sir A. Mond informed Sir R. Clough, in the House of Commons on Monday night, that the average price per house of tenders approved in the month ending June 1, 1922, was £404. This figure showed a reduction of 48 per cent. on the average for June, 1919, and 57 per cent. on that for September, 1920, the month of the highest average. Comparing June, 1922, with June, 1919, the average reduction in the rates of wages current was 6 per cent. The average reduction in the prices of materials was about 19 per cent. Comparing June, 1922, with September, 1920, the average reduction in wages rates would be 33.5 per cent., and the average reduction in prices of materials would be 37 per cent. If a fairly average proportion between the costs of labour, materials and other charges be taken in both cases the percentage reductions on the price of the cottage due to the above would be as follows:—

	Percentage reduction compared with June, 1919.	Percentage reduction compared with Sept., 1920.
Fall in labour rates would represent	2.3	12.6
Fall in prices of materials would represent.....	9.2	17.8
	11.6	30.4
Balance to give the actual fall in tender prices, which included reduction in cost of plant and other overhead charges, profit, remuneration and the value of increased output	36.5	26.6
Total reduction ..	48.0	57.0

New Social Club for Women.

Through the generosity of Viscountess Cowdray, who has purchased outright the extensive house, No. 20, Cavendish-square, originally the town house of the Barrington family, and, in more recent years, the residence of Mr. Asquith and his family, nurses and other professional women have been provided with a club. The architect, Mr. Edwin Cooper, F.R.I.B.A., was given a free hand to make the best use of the site and to provide a building suitable to a very large membership of ladies.

Viscountess Cowdray held a reception on Monday, when the new club was inspected. The premises contain eight apartments available as drawing-room, reading-room, and library, and so forth. An entirely new dining-room has been built. There are bedrooms available for country members, and the flat roof of the dining-room forms an open-air resort.

THE BUILDING TRADE.

THE W.D. SCHEDULE.

FIRST published in 1855, the Schedule of Prices for Works and Repairs to buildings of the War Department has become a classic work of reference for prices for jobbing work. The last revision was in 1914, but the edition published a week or so ago is quite a step in advance, at any rate as regards schedules of prices which form the basis for a contract for works and repairs. Some of the prices will be considered high and some low, but, generally speaking, very fair average figures have been fixed for the present time, and they should be useful to estimators. The arrangement and methods of measurement have been brought into line with current professional practice. An interesting departure, fo example, is in the method of measuring and valuing brickwork. Since the earliest edition, and up to and including the revision of 1914, a price "per foot cube" has been given, but the work will now be measured as reduced brickwork; as the quantities are usually small, a unit of "per foot super of reduced brickwork" has been introduced, with additions for "half-brick walls fair face both sides," "underpinning," &c. Although lime-whiting is usually billed under bricklayer, it is here included with distempering in the Painter and Decorator section, but as the prices appear to relate chiefly to repairs perhaps this is just as well. Cast-iron and wrought-iron piping have been transferred from "Smith and Founder" to the "Plumbing" section, so that all water services are collected and the prices have been fixed, as is now more usual, to cover all fittings. An interesting departure is the inclusion of an "Electrician" section covering prices for electric wiring and fittings both for lighting and bells. An improvement here would be an item to cover testing electric light circuits for faults. The renewal of a fuse under the appropriate schedule item and price is of little use unless the fault causing the fuse to blow is found and remedied. In the older schedules appeared prices for W.O.P.B. articles. Apparently these cabalistic letters represent "War Office Pattern Book," but as these are not available to the general public such prices were useless. An interesting method of measurement has been adopted for painting which covers all these pattern articles—chiefly cupboards and presses—with an overall price per foot super.

The specifications at the heads of each section have been largely re-written. This applies especially to reinforced concrete, but a suggested improvement on page 22 would be that the leaving-off points in new works for reinforced concrete columns and piers should be at the intersection of the columns and piers with the haunching of the floor beams.

It is noticed from the Army List that Colonel T. E. Coleman is the Chief Inspector of Works, and it is hazarding a pretty shrewd guess that it is due to this gifted officer and to his colleague, Major J. B. Bradshaw, that this improved schedule of prices is due.

LINOLEUM AS A FLOOR FINISH.

LINOLEUM, which used to be regarded as a mere matter of furnishing, is becoming more and more a matter connected with the architect's responsibilities. The high price of floorings, which frequently require subsequent coverings before occupation, and the lasting and cleanable properties of linoleum, render it increasingly popular for a great number of floor surfaces. A recent article in the *American Architect* gives some good illustrations of its application. Composed of flax and linseed oil, which is allowed to oxidise and when nearly solid pressed into a canvas backing, it can be obtained now in a variety of patterns "inlaid," that is, with the colour extending sharply right through the material. The varieties in which patterns are merely printed on the surface are, of course, useless for hard wear, and for permanent work the heaviest and, therefore, most expensive grades known as "battleship" linoleum are really the most economical. The preparation of the floor surface for this material is important, and it must be dry and kept dry. Ordinary cement is quite suitable, but it may be wise to put some waterproofing material in the final layer. Asphalte is excellent though, of course, more costly. With fireproof floors, and generally on solid ground floors, boarding, with its attendant disadvantages, may be thus done away with. The linoleum is pasted on the edges, and the accurate cutting of these junction lines is of great importance. With skill and care they may be made practically invisible and watertight. This is best done by cutting both overlapping edges at the same time with a sufficiently sharp and powerful knife, involving only a little more waste. This condition could be specified in ordering. Linoleum may be laid on felt and pasted thereto. This deadens sound, makes a warm surface, gets over expansion difficulties and, if the butting edges are lifted, and cemented after the felt has been pasted good watertight joints can still be made.

NEW BUILDINGS IN LONDON.

The extension of premises for Messrs. Lloyds Bank, Ltd., 121–125, Oxford-street, and 115, Fore-street, E.C., are being carried out by Mr. Charles R. Price, of 87, Bishopsgate, E.C.2. This firm have also in hand the alterations and extensions to Messrs. Samuel Montagu & Co., banking premises in Old Broad-street, and the National Bank of Ireland, Throgmorton-avenue, E.C. All the sub-contracts have been let.

WEST CENTRAL.—The rebuilding of the premises of Messrs. Edwards & Sons (of Regent-street), Ltd., antique furnishers, at 157-161, Regent-street, is now in progress. The new building will have a steel frame and a front of Portland stone backed with brickwork. The plans have been prepared by the architect, Messrs. Henry Tanner, of 12, Regent-street, and show a block of modern shops, and showrooms, the former to have fronts of gunmetal, Portland stone, new pavement lights, &c. The general contract has been secured by Messrs. J. Parkinson & Sons, Ltd., of 171, Shaftesbury-avenue, W.C. There will be seven floors to be constructed with hollow concrete blocks by the builders, and a flat asphalte roof. The demolition of the old premises was completed early in March last by Mr. Nelson Wise, of Henshall-street, Dalston, N 1. The steelwork is being supplied by Messrs. Redpath, Brown & Co., Ltd., of 3, Lawrence Pountney-hill, E.C.4. Asphalting will be done by Messrs. Thomas Faldo & Co., Ltd., of Windsor House, Kingsway, W.C.2.

Work has now commenced on the extension to Walmer House, 288, Regent-street. The new building, with a frontage of 85 ft. to Regent-street and 63 ft. to Margaret-street, will join up to and be constructed in similar style to the existing premises. There will be six floors above sub-ground and the construction will comprise a steel-frame and brickwork, Portland stone front and a roof of "Westmorland" slates. The plans have been prepared by Mr. C. T. Armstrong, A.R.I.B.A., of Bexhill. The land, on which the work is proceeding, is owned by Mr. Walter J. Fryer, C.B.E., who is a tenant of the Crown, and has offices in the existing premises. His own building staff are carrying out the general contract. A reinforced concrete retaining wall was also constructed by Mr. Fryer's staff to support the footpath during excavations. Messrs. C. Isler & Co., of 33, Bear-lane, S.E.1, are to sink an artesian well on the site to a depth of probably 600 ft. in order to supply sufficient water for the entire block. A reinforced concrete tank is to be constructed on the sub-ground floor, having a capacity sufficient for three days' supply and from this tank the water will be pumped to the roof for distribution to the various floors. A number of sub-contracts have been decided as follows:—Steelwork: Messrs. H. Young & Co., Ltd., of 6, Wandsworth-road, S.W.8; metal casements: Messrs. Henry Hope & Sons, Ltd., of 59, Berners-street, W.1; stonework: Messrs. United Stone Co., Ltd.; sanitary work: Mr. Chas. Thomerson, of 263, Hackney-road, E.2.; pavement lights: Messrs. Luxfer Prism Syndicate, Ltd., of 16, Hill-street, Finsbury, E.C.2. A high-speed passenger lift will be installed by Messrs. Medways Safety Lift Co., of Rolt-street, Deptford, S.E. 8. The lift enclosures and fire-escapes will be supplied by Messrs. Hayward's, Ltd., of 187, Union-street, Borough, S.E.1.

Messrs. Hatch Mansfield & Co., Ltd., wine merchants to H.M. the King, have acquired the freehold of the premises occupying No. 23, Pall Mall, and will remove from 47, Pall Mall to this address on completion of the necessary alterations. The building, which is a very old one, has suffered considerably from the great number of interior alterations which have been made in the past. The consequent weak condition of the main 14 by 10 beams necessitates the strengthening of the four floors with No. 7 rolled steel joists and straps. Final details concerning the shop-fittings, scheme of decoration and general arrangements have not yet been decided, but it is understood that part of the ground floor will be devoted to the provision of a cigar store, also a wine-tasting room. The plans are being prepared by Mr. R. P. Ogelsby, architect, of 26, East Castle-street, S.W.1. The general contract has been secured by Mr. F. G. Christmas, of 4, St. Oswald's Studios, West Brompton, S.W.6. The steelwork will be supplied by Messrs. Measures Bros. (1911), Ltd., of 105, Southwark-street, S.E.1.

BLACKFRIARS.—The premises known as Albion place, Blackfriars-road, Upper Ground-street, with frontage to the river at the foot of Blackfriars-bridge, are being rebuilt for a dock warehouse. The building will comprise nine floors (sub-basement, basement and 7 floors above), and the foundations will be carried on ferro-concrete piles, while the superstructure will be of ferro-concrete on the Hennebique system. The plans have been prepared by Messrs. Ridge, Greaves & Ridge, 123 and 124, Newgate-street, E.C., and for the ferro-concrete piling and structure by Messrs. L. G. Mouchel & Partners, Ltd., civil engineers, 36 to 38, Victoria-street, S.W. 1. The general contract has been secured by Mr. W. S. Shepherd, 78, Upper Ground-street, Blackfriars, S.E. 1. The sub-contract for the piling and ferro-concrete superstructure has been entrusted to Messrs. Gray's Ferro-Concrete Coy. of Glasgow, and Messrs. Hudsons, Ltd., have the contract for excavations. No further sub-contracts have been settled yet.

BISHOPSGATE.—Messrs. Ashby & Horner, contractors, are carrying out excavation work on a site in St. Helen's-place, for the Eastern Bank, Ltd., who propose to erect a branch there. No contracts have yet been let. The buildings that have been demolished were very old, and had been let out as offices.

EAST.—At the premises, Nos. 73, 74, 75, Aldgate High-street, a stone front of considerable dimensions is being restored. The work is under the supervision of Mr. E. Stanley Iles, Lic.R.I.B.A., and the method of renovation is a special process employed by the contractor, Mr. George Barker, 48-50, New-road, Whitechapel, E.

PADDINGTON.—Messrs. Y. J. Lovell & Sons, of Paddington, are constructing a hospital for epileptics at the junction of Brook-street and Thomas-street. A private house occupied the old site. The architect is Mr. C. H. Biddulph Pinchard.

Extensive additions are being carried out by Messrs. Y. J. Lovell & Sons to Paddington Infirmary. The architects are Messrs. Adams, Holden & Pearson. The sub-contracts are not all let.

DRAFT REGULATIONS FOR THE USE OF WOODWORKING MACHINERY.

A NUMBER of substantial objections having been made to the revised draft of the Regulations under Section 79 of the Factory and Workshop Act, 1901, for the use of woodworking machinery, which was issued on January 3 last, the Secretary of State thought it desirable to consult with the principal associations which had raised such objections, namely:—The National Federation of Building Trades Employers; the Timber Trade Federation of the United Kingdom; the National Federation of the Furniture Trades; the Engineering and National Employers' Federations; the Shipbuilding Employers' Federation; the Federated Home Grown Timber Merchants' Associations; the Scottish Timber Merchants' and Sawmillers' Association; the Scottish Employers' National Federation of Packing Case Makers; the Yorkshire Employers' Federation of Furnishing and Allied Trades; the London Cabinet and Upholstery Trades Federation; the Metropolitan Box and Packing Case Manufacturers' Federation. As a result of a conference which was held by Mr. Bellhouse, Deputy Chief Inspector of Factories, on March 16 last, the agreement has been reached with these associations, and, in view of the representative character of the associations, the Secretary of State hopes this final draft will be acceptable to all concerned.

Any objection with respect to the draft Regulations by or on behalf of any person affected thereby must be sent to the Secretary of State within 21 days from June 16, 1922.

The revised Regulations are as follows:—

In pursuance of Section 79 of the Factory and Workshop Act, 1901, I hereby make the following Regulations and direct that they shall apply to all factories or parts thereof, and to any place to which the provisions of the said Section are applied by the said Act in which any woodworking machinery is used.

Provided that if the Chief Inspector of Factories is satisfied in respect of any factory or other place to which these Regulations apply, that, owing to the special conditions of the work or otherwise, any of the requirements of the Regulations can be suspended or relaxed without danger to the persons employed therein, he may by certificate in writing authorise such suspension or relaxation for such period and on such conditions as he may think fit. Any such certificate may be revoked at any time.

Definitions.

In these Regulations—

"Woodworking machine" means a circular saw, plain band saw, planing machine, vertical spindle moulding machine or chain mortising machine operating on wood.

"Circular saw" means a circular saw working in a bench (including a rack bench) for the purpose of ripping, deep-cutting or cross-cutting, but does not include a swing saw or other saw which is moved towards the wood.

"Plain band saw" means a band saw, other than a log saw or band re-sawing machine, the cutting portion of which runs in a vertical direction.

"Planing machine" includes a machine for overhand planing or for thicknessing or for both operations.

"Within reach" means within 6½ feet from the floor or from any other point to which any person employed or working in a factory normally has access while the machinery is in motion.

"Underground room" means a room any part of which is so situate that half or more than half the whole height thereof measured from the floor to the ceiling is below the surface of the footway of the adjoining street or of the ground adjoining or nearest to the room.

"Gauge" means the British Standard Wire Gauge.

Duties.

It shall be the duty of the occupier to observe Part I of these Regulations.

It shall be the duty of all persons employed to observe Part II of these Regulations.

Part I.—Duties of Occupiers.

(1) Every woodworking machine shall be provided with an efficient stopping and starting appliance, and the control of this appliance shall be in such a position as to be readily and conveniently operated by the person in charge of the machine.

(2) Every shaft, wheel, pulley, strap, band or other device within reach by which any part of a woodworking machine receives its motion shall be securely fenced.

(3) Sufficient clear and unobstructed space shall be maintained at every woodworking machine while in motion to enable the work to be carried on without unnecessary risk.

(4) The floor surrounding every woodworking machine shall be maintained in good and level condition, and as far as practicable free from chips or other loose material, and shall not be allowed to become slippery.

(5) Where the natural light at a woodworking machine is inadequate and can be improved by the provision of additional or better windows not involving serious structural alteration, or by whitening the walls or tops of the factory, or by any other reasonable means, the occupier shall take steps as aforesaid to improve the natural light at the said machine.

(6) The means of artificial lighting for every woodworking machine shall be adequate, and shall be so placed or shaded as to prevent direct rays of light from impinging on the eyes of the operator while he is operating such machine.

(7) After the 1st March, 1924, no woodworking machine shall be worked in any underground room which is certified by the Chief Inspector of Factories to be unsuitable for the purpose as regards construction, light, ventilation or in any other respect.

(8) The temperature of any part of a room in which a woodworking machine is being worked shall not at any time fall below 50 degrees, except where and in so far as the construction of the room and the necessities of the business carried on make it impracticable to maintain this temperature.

(9) (*a*) Every person while being trained to work a woodworking machine shall be fully and carefully instructed as to the dangers arising in connection with such machine and the precautions to be observed.

(*b*) No person shall be employed at a woodworking machine unless he has been sufficiently trained to work that class of machine or unless he works under the adequate supervision of a person who has a thorough knowledge of the working of the machine.

(10) Every circular saw shall be fenced as follows:—

(*a*) The part of the saw below the bench table shall be protected by two plates of metal or other suitable material, one on each side of the saw; such plates shall not be more than six inches apart, and shall extend from the axis of the saw outwards to a distance of not less than two inches beyond the teeth of the saw. Metal plates, if not beaded, shall be of a thickness at least equal to 14 gauge, or, if beaded, be of a thickness at least equal to 20 gauge.

(*b*) Behind and in a direct line with the saw there shall be a riving knife, which shall have a smooth surface, shall be strong, rigid, and easily adjustable, and shall also conform to the following conditions:—

(i) The edge of the knife nearer the saw shall form an arc of a circle having a radius not exceeding the radius of the largest saw used on the bench.

(ii) The knife shall be maintained as close as practicable to the saw, having regard to the nature of the work being done at the time, and at the level of the bench table the distance between the front edge of the knife and teeth of the saw shall not exceed half an inch.

(iii) For a saw of a diameter of less than 24 inches, the knife shall extend upwards from the bench table to within one inch of the top of the saw, and for a saw of a diameter of 24 inches or over shall extend upwards from the bench table to a height of at least nine inches.

(*c*) The top of the saw shall be covered by a strong and easily adjustable guard, with a flange at the side of the saw farthest from the fence. The guard shall be kept so adjusted that the said flange shall extend below the roots of the teeth of the saw. The guard shall extend from the top of the riving knife to a point as low as practicable at the cutting edge of the saw.

(11) A suitable push-stick shall be kept available for use at the bench of every circular saw which is fed by hand, to enable the work to be carried on without unnecessary risk.

(12) Every plain band saw shall be guarded as follows:—

(*a*) Both sides of the bottom pulley shall be completely encased by sheet metal or other suitable material.

(*b*) The front of the top pulley shall be covered with sheet metal or other suitable material.

(*c*) All portions of the blade shall be enclosed or otherwise securely guarded, except the portion of the blade between the bench table and the top guide.

(13) After 1st March, 1924, no planing machine, which is not mechanically fed, shall be used for overhand planing unless it is fitted with a cylindrical cutter block.

(14) No planing machine, which is not mechanically fed, shall be used for planing overhand any piece of wood less than twelve inches in length unless a safe holder is used for such piece of wood. Provided that this regulation shall not apply to the operation of planing the edges of flat pieces of wood, nor to a planing machine which is fitted with a cylindrical cutter block.

(15) Every planing machine used for overhand planing shall be provided with a "bridge" guard capable of covering the full length and breadth of the cutting slot in the bench, and so constructed as to be easily adjusted both in a vertical and horizontal direction.

(16) the feed roller of every planing machine used for thicknessing, except the combined machine for overhand planing and thicknessing, shall be provided with an efficient guard.

(17) The cutter of every vertical spindle moulding machine shall when practicable be provided with the most efficient guard having regard to the nature of the work which is being performed.

(18) For such work as cannot be performed with an efficient guard for the cutter, the wood being moulded at a vertical spindle moulding machine, shall, if practicable, be held in a jig or holder of such construction as to reduce as far as possible the risk of accident to the worker.

(19) A suitable "spike" or push-stick shall be kept available for use at the bench of every vertical spindle moulding machine.

(20) The chain of every chain mortising machine shall be provided with a guard which shall enclose the cutters as far as practicable.

(21) The guards and other appliances required by these Regulations shall be maintained in an efficient state and shall be constantly kept in position while the machinery is in motion, except when, owing to the nature of the work being done, the use of the guards or appliances is rendered impracticable. The guards shall be so adjusted as to enable the work to be carried on without unnecessary risk.

(22) Regulations 10, 12, 15 and 16 shall not apply to any woodworking machine in respect of which it can be shown that other safeguards are provided and maintained which render the machine equally safe as it would be if guarded in the manner prescribed by these Regulations.

Part II.—Duties of Persons Employed.

(23) Every person employed on a woodworking machine shall

(i) use and maintain in proper adjustment the guards provided in accordance with these Regulations;

(ii) use the "spikes" or push-sticks and holders provided in compliance with Regulations 11, 14, 18 and 19; except when, owing to the nature of the work being done, the use of the guards or appliances is rendered impracticable.

BUILDING SURVEYORS' AND INSPECTORS' ASSOCIATION.

ON Saturday, June 17, a large and representative gathering of the Building Surveyors' and Inspectors' Association took place and a visit to the Liverpool Cathedral (by kind permission of Mr. G. Gilbert Scott, R.A., the architect) was made, the party being conducted by Mr. O. Pittaway, clerk of works. A keen interest was taken in the materials of construction, the drawing office, and the model of the groining for the west end of the choir. Interest was also taken in connection with the wide jointing to the masonry work, and also the treatment of the woodwork, with a view to giving it an aged appearance. The inspection of the Lady Chapel, which is the finished portion of the Cathedral, concluded the visit. The Vice-Chairman, Mr. Percival (Stoke-on-Trent), proposed a vote of thanks to the clerk of works for conducting the party and in putting the vote to those present, the Chairman, Mr. Stone, of Bootle, referred to the pleasure it was to see that the British craftsman was still able to carry out and build works of art and craftsmanship comparable with the ages that have gone by.

After lunch, the business of the annual general meeting (which was attended by 30 per cent. of the members) was dealt with, the most important items being the revised scale of salaries adopted by the Association and approved by the Joint Consultative Committee of the National Association of Local Government Officers, and an alteration to the constitution whereby the Association becomes a branch of, instead of affiliated to, the N.A.L.G.O.

On the report of the Education Sub-Committee, correspondence was read in connection with the proposed scheme of examinations, and, although incomplete, it is hoped that a scheme will be adopted in due course.

A list of new members was submitted for approval. The Secretary and Treasurer submitted reports and accounts for the year's work, which were approved. The principal officers were re-elected, and thanked for their work during the past year. An increase was made to the Executive Committee for the purpose of forming Sub-Committees.

Obituary.

Following an operation for appendicitis the death took place on Tuesday last week in Pontypool hospital of Mr. Joshua Powell, of Penygarn, a partner in the firm of Powell Bros., builders and contractors, Pontypool.

RATES OF WAGES IN THE BUILDING TRADE.

The following are the rates of wages in the building trade in England and Wales. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur:—

	Masons	Bricklayers.	Carpenters, Joiners.	Plasterers	Slaters.	Plumbers.	Painters.	Masons' Labourers.	Bricklayers' Labourers.	Plasterers' Labourers.
Aberdare	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Accrington	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Altrincham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Ashton-under-Lyne	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Barnsley	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Barrow-in-Furness	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Barry	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Bath	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½		
Bedford	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½		
Birkenhead	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/5½		
Birmingham	1/8	1/8	1/8	1/8	1/8	1/9	1/8	1/3		
Bishop Auckland	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Blackburn	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Blackpool	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Bolton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Bournemouth	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½		
Bradford	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Bridgwater	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	1/3½	0/11½		
Brighton	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½		
Bristol	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Burnley	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Burton-on-Trent	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2		
Bury	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Cambridge	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½		
Cardiff	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Chatham	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0		
Chelmsford	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½		
Cheltenham	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½		
Chester	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Chesterfield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Colchester	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½		
Coventry	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Crewe	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2		
Darlington	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Derby	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Doncaster	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Dudley	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2		
Durham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
East Glam. and Mon. Valleys	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Exeter	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3½	1/0½		
Folkestone	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0		
Gloucester	1/5	1/5	1/5	1/5	1/5	1/5	1/4	1/0½		
Grantham	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2		
Grays	1/8	1/8	1/8	1/8	1/8	1/8½	1/7	1/3		
Grimsby	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Great Yarmouth	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0		
Guildford	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½		
Halifax	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Harrogate	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Hartlepools	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Hastings	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0		
Hereford	1/5	1/5	1/5	1/5	1/5	1/5	1/4	1/0½		
Huddersfield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Hull	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Ipswich	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½		
Lancaster	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Leamington Spa	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2		
Leeds	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Leicester	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Lichfield	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2		
Lincoln	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Liverpool	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/5½		
Llanelly	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
London	1/8	1/8	1/8	1/8	1/8	1/8½	1/7	1/3		
Loughborough	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Luton	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½		
Maidstone	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0		
Manchester	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Mansfield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Merthyr Tydfil	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Middlesbrough	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Newcastle-on-Tyne	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Newport, Mon.	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Northampton	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2		
Norwich	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½		
Nottingham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Oakham	1/5	1/5	1/5	1/5	1/5	1/5	1/5	1/0½		
Oldham	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/		
Oxford	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½		
Plymouth	1/6	1/6	1/6	1/6	1/6	1/6	1/5	1/1½		
Pontypridd	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Portsmouth	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½		
Preston	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/		
Reading	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½		
Rochdale	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Rochester	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/0		
Rugby	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2		
St. Albans	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½		
St. Helen's	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Scarborough	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2		
Sheffield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Shrewsbury	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2		
Southampton	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½		
Southend-on-Sea	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½		
Southport	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
South Shields	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Stockport	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Stockton-on-Tees	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Stoke-on-Trent	1/8	1/8	1/8	1/8	1/8	1/9	1/0	1/0½		
Stroud	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4	1/3		
Sunderland	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Swansea	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/0½		
Swindon	1/5	1/5	1/5	1/5	1/5	1/5	1/4	1/0½		
Taunton	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½		
Torquay	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/0½		
Tunbridge Wells	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3		
Wakefield	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/2		
Walsall	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/3		
Warrington	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
West Bromwich	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3		
Wigan	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/0½		
Windsor	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/4½	1/3		
Wolverhampton	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/2		
Worcester	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/2		
York	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½	1/6½			

(For rates of wages in the Building Trade in Scotland, see page 963.)

CONTRACTS, COMPETITIONS, &c.

For some contracts still open, but not included in this List, see previous issues. Those with an asterisk are advertised in this number. Certain conditions beyond those given in the following information are imposed in some cases, such as that advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in; the name and address at the end is the person from whom or place where quantities, forms of tender, &c., may be obtained.

BUILDING AND PAINTING.

JUNE 24. — **Bournemouth.** — LIMEWASHING. — For limewashing, &c., of sanitary conveniences, at Council Schools. Director of Education, Town Hall, Bournemouth.

JUNE 24.—**Bradford.**—PAINTING.—For painting work at the King's Arcade, Market-street, for the T.C. City Architect, Town Hall, Bradford.

JUNE 24.—**Glasgow.**—CONVENIENCE.—Reconstruction of the public underground convenience at Woodside-crescent, Charing Cross, for the T.C. Office of Public Works, City Chambers, 64, Cochrane-street, Glasgow.

JUNE 24.—**Prestonpans.**—PAINTING, &C.—(1) Painter work required in connection with 12 houses; (2) formation of roads, kerbing, &c., for the T.C. Messrs. R. & A. K. Smith, surveyors, 44, Queen-street, Edinburgh.

JUNE 24.—**Sheffield.**—ALTERATIONS.—For alterations and additions to the Heeley Coliseum, London-road, Sheffield. Mr. P. A. Hinchliffe, architect, 19, St. James'-street, Sheffield. Deposit £1 1s.

JUNE 24.—**Sheffield.**—PAINTING.—For the outside painting of the Union Offices, Westbar, for the Board of Guardians. Mr. Albert E. Booker, Clerk, Union Offices, Westbar, Sheffield.

JUNE 24.—**Stafford.**—PAINTING.—For painting the Markets and Guildhall and various bridges, fences, &c., for the T.C. Mr. W. Plant, Borough Engineer, Borough Hall, Stafford.

JUNE 24.—**Yeovil.**—CONVENIENCE.—Construction of underground convenience, for the T.C. Mr. A. J. Price, Borough Surveyor, Yeovil. Deposit £2.

JUNE 26.—**Adwick-le-Street.**—OUTBUILDINGS.—Erection of outbuildings to eight cottages at Adwick-le-Street, for the West Riding Small Holdings Committee. County Land Agent, County Hall, Wakefield.

JUNE 26.—**Bargoed.**—CEMENTING.—For cementing, &c., of Bargoed Workmen's Institute and Library. Mr. W. Williams, Secretary, 5, West-street, Bargoed.

JUNE 26.—**Birmingham.**—PAINTING, &C.—Repairs and painting at Moseley-street Police Station, for the T.C. Mr Herbert H. Humphries, City Engineer, The Council House, Birmingham. Deposit £1.

JUNE 26.—**Durham.**—VARIOUS WORKS.—(1) Durham Johnston Secondary School, alterations; (2) Cassop Council School, alterations to out-offices and drainage; (3) Chilton Buildings Council School, reconstruction of boundary walls and playshed, for the Durham C.C. Mr. F. Willey, F.R.I.B.A., 34, Old Elvet, Durham.

JUNE 26.—**Edinburgh.**—ALTERATIONS, &C.—(1) Structural alterations on infant school, Juniper Green; (2) painter work at Bristol, Balfour-place, Lorne-street, Gilmerton, Dalry Normal, and Tynecastle schools; also Holy Cross and Trinity Academies. Education Offices, Castle-terrace, Edinburgh.

JUNE 26.—**Ellesmere Port.**—HOUSES.—Erection of forty houses at Ellesmere Port, for the U.D.C. Surveyor, Council Offices, Ellesmere Port.

JUNE 26.—**Flint.**—PAINTING.—For painting small holding buildings at Overton and Bretton, for the Flintshire C.C. Mr. R. G. Whitley, County Architect, Mold.

JUNE 26. — **Huddersfield.** — HOUSES. — Erection of house and shop at Fartown. Messrs. J. H. Hall & Son, architects, Exchange Buildings, Market-street, Huddersfield.

JUNE 26.—**King's Lynn.**—REPAIRS, &C.—(1) Internal painting and colouring St. James's Girls' and Junior Schools; (2) internal painting and decorating the Stanley Buildings, St. James's-road; (3) repairs to stone staircase at Technical Institute. Mr. A. J. Smith, Borough Surveyor, King's Lynn.

JUNE 26.—**London.**—CONCRETE SWING FRAMES, &c.—Supply and erection of gymnastic swing frames, giant stride poles and horizontal bar posts in reinforced concrete, at various parks and open spaces, for the L.C.C. Chief Officer of the Parks Department, New County Hall, S.E. 1.

JULY 26.—**Marske-by-Sea.**—ALTERATIONS.—Alterations and additions to three cottages at Rye Hills, Marske-by-Sea. Mr. Thomas E. Senior, Zetland Estate Office, Marske-by-Sea.

JUNE 26.—**Middlestown.**—PAINTING.—Painting, &c., the interior of Netherton Branch Stores, for the Middlestown Co-operative Industrial Society, Ltd. Mr. F. Bamforth, Secretary, Town End, Middlestown.

JUNE 26.—**Mountain Ash.**—FENCING.—Providing and erecting about 850 yards of reinforced concrete post and wire fencing on the Penrhiwceiber Housing Site, for the U.D.C. Mr. W. G. Thomas, Surveyor, Town Hall, Mountain Ash

JUNE 26.—**Mountain Ash.**—HOUSING SCHEME.—For erection of 18 A-type houses on the Penrhiwceiber Farm site. Mr. C. H. Elford, Town Hall, Mountain Ash.

JUNE 26.—**Port Talbot.**—CONVENIENCE.—Erection of a public convenience at Aberavon Beach, for the T.C. Borough Engineer, Municipal Buildings, Port Talbot.

JUNE 26.—**Salford.**—MOTOR GARAGE.—Erection of a motor garage adjoining the Central Fire Station, Salford. Borough Engineer, Town Hall, Salford.

JUNE 26.—**Seaton Delaval.**—SCHOOL.—Erecting a new elementary school at Seaton Delaval to accommodate 440 scholars, for the Northumberland C.C. Mr. C. Williams, Director of Education, The Moothall, Newcastle-upon-Tyne. Deposit £2 2s.

JUNE 26.—**Tipperary.**—HOUSES.—Erection of 15 houses at Murgasty (Tipperary Hills), for the U.D.C. Mr. James Mackey, 58, Dame-street, Dublin. Deposit £1 1s.

JUNE 26.—**Wigan.**—PAINTING.—For painting of the exterior and interior of Grammar School. Borough Engineer, Hewlett-street, Wigan. Deposit £1 1s.

JUNE 27.—**Brentford.**—ALTERATION.—Alteration to Nursery (Warkworth House), for the Board of Guardians. Mr. F. E. Harmsworth, Clerk, Toolands House, 34, Twickenham-road, Isleworth, Middlesex.

JUNE 27.—**Edinburgh.**—WALL, &C.—Taking down and re-erecting walls, railings, &c., in front of various properties in Milton-road, for the T.C. Office of the City Road Surveyor, City Chambers, Edinburgh.

JUNE 27.—**Jarrow.**—PAINTING.—Painting, &c., at the Central Council, Grange, Dunn-street and Bede Burn Council Schools and the St. Bede's R.C. Junior School. Mr. E. R. Knaggs, Clerk of Works, Central Council School, Jarrow.

JUNE 27.—**Llanfair.**—BUILDER WORK.—For work to be done at the C.M. Chapel, Llanfair P.G. Mr. Wm. Jones, Bryn Salem.

JUNE 27.—**London, E.**—PAINTING.—Cleansing and painting schools during the summer vacation, for the Leyton U.D.C. E.C. Mr. John H. Jacques, Lic.R.I.B.A., 2, Fen-court, Fenchurch-street, E.C.3. Deposit £1.

JUNE 27.—**Nottingham.**—REPAIRS.—Execution of ordinary minor repairs to the properties under charge of Estates Committee for twelve months. (1) Bricklayer's, slater's, mason's, and plasterer's work; (2) carpenter's, joiner's, and painter's work; (3) plumber's and glazier's work. Mr. W. E. Williams, Estates Surveyor, Guildhall, Nottingham. Deposit £1 each contract.

JUNE 27.—**Roberton.**—HALL.—Erection of parish hall. Mr. J. P. Alison, architect, Hawick.

JUNE 27.—**Tregaron.**—HOUSE.—Erection of house and buildings at Ystrad Caron Farm, Tregaron, for the Cardiganshire Small Holdings Committee. Mr. J. Lewis-Evans, architect, Great Darkgate-street, Aberystwyth.

JUNE 28.—**Chiswick.**—FERRO-CONCRETE BRIDGE.—Construction of a new ferro-concrete bridge over the London & South-Western Railway, in three spans, with retaining walls, steps and other work incidental thereto, from such contractors as are duly authorised to execute ferro-concrete work on the Hennebique system. Mr. Edward Willis, M.Inst.C.E., Engineer to the Chiswick U.D.C., Town Hall, Chiswick, W.4. Deposit £2 2s.

JUNE 28.—**Eastbourne.**—EXTENSION.—For extension to boiler-house at electricity works, for the T.C. Mr. Leslie Roseveare, Borough Engineer, Town Hall, Eastbourne. Deposit £1 1s.

JUNE 28.—**Edinburgh.**—CONVENIENCES.—Erection of public conveniences at the public park, Bloomiehall, Juniper Green, for the T.C. Mr. James A. Williamson, City Architect, City Chambers, Edinburgh.

JUNE 28.—**Gorebridge.**—EXTENSIONS.—Extensions to Stobhill School, Gorebridge, for the Midlothian Education Authority. County Education Offices, 1, India Buildings, Edinburgh.

*JUNE 28.—**London, S.E.**—KITCHEN REQUISITES.—Providing and fixing a large steamer for the main kitchen at the Lewisham Hospital, for the Guardians of the Lewisham Union. Mr. W. R. Owen, Clerk to the Guardians, 394, High-street, Lewisham, S.E.13, endorsed "Tender for Steamer."

JUNE 28.—**Manchester.**—ALTERATIONS.—Alterations and additions to temporary municipal school buildings at Heald-place, Rusholme, for the T.C. Education Offices, Deansgate, Manchester. Deposit £1 1s.

JUNE 28.—**Sheffield.**—HOUSES.—Erection of 58 additional houses on the Stubbin Estate, Firth Park, for the T.C. Mr. F. E. P. Edwards, City Architect, Town Hall, Sheffield. Deposit £2.

JUNE 28.—**South Shields.**—HOUSES.—Erection of 12 houses on the Whitburn Housing Estate, for the R.D.C. Mr. T. Ernest Gilchrist, Council's Housing Architect, Council Depôt, East Boldon.

JUNE 29.—**Acton.**—PAINTING, &C.—For painting and repairs to fences, &c., at Acton Green, for the U.D.C. Mr. W. Hodson, Town Clerk, Municipal Offices, Acton.

JUNE 29.—**Burton-on-Trent.**—EXTENSIONS.—Extensions to the Electricity Works, foundations to boiler house, water culvert, &c., for the T.C. Mr. R. S. Litherland, architect, 10, High-street, Burton-on-Trent. Deposit £2 2s.

JUNE 29.—**Caterham.**—HOUSES.—Erection of six houses on the Queen's Park Housing Site, for the U.D.C. Surveyor, Council Offices, Caterham Valley. Deposit £1 1s.

JUNE 29.—**Edinburgh.**—PAINTING.—For painter work at George Heriot's School, the Heriot-Watt College, and the Trust Offices. Mr. John Anderson, F.S.I., Superintendent of Works, 20, York-place, Edinburgh.

JUNE 29.—**Manchester.**—CONVERSION.—Conversion of existing building into shelter at St. George's Park, Hulme, for the T.C. City Architect, Town Hall Manchester. Deposit 10s. 6d.

JUNE 29.—**Rothwell.**—HOUSES.—Erection of 12 houses, for the U.D.C. Messrs. Jones & Stocks, 56, Prudential Buildings, Leeds. Deposit £1 1s.

JUNE 29. — **Southampton.** — COTTAGES, PIGGERIES, &c.—Erection of two pairs of cottages, piggeries, &c., at Titchfield, for the C.C. Mr. A. L. Roberts, County Architect, The Castle, Winchester. Deposit £1 1s.

JUNE 29.—**Southwark.**—PAINTING.—For internal cleaning and painting works, the formation of linen rooms, the provision of new flooring and wall tiling, &c., at the Hospital, East Dulwich-grove, S.E., for the Board of Guardians. Messrs. A. Saxon Snell & Phillips, 9, Bentinck-street, W.1. Deposit £2.

JUNE 29.—**Stockton-on-Tees.**—PAINTING.—Painting of the ironwork on Victoria Bridge, for the Bridge Board. Mr. J. P. Wakeford, Engineer, Victoria Buildings, Stockton-on-Tees.

JUNE 29.—**Upper Holloway, N.**—INTERNAL REPAIRS, &C.—For internal repairs and painting to certain wards and annexes; also to second floor of the Nurses' Home Block, at the Infirmary, Highgate Hill, for the Guardians of the Poor of the Parish of St. Mary, Islington. Mr. Edmund J. Harrison, Lic.R.I.B.A., 23, Berkeley-road, Crouch End, N.8. Deposit £2 2s.

BUILDING TRADE WAGES IN SCOTLAND.*

THE following are the present rates of wages in the building trade in the principal towns of Scotland. Every endeavour is made to ensure accuracy, but we cannot be responsible for errors that may occur:—

	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Bricklayers' Labourers.	Plasterers'
Aberdeen	1/7	1/10½	1/7	1/7½	1/8	1/9	1/7	1/2 to 1/4	
Airdrie	1/8	1/8	1/8	1/8	1/8	1/8	—	1/8	
Alexandria	1/8	1/8	1/8	1/8	1/8	1/8	—	1/3 to 1/4	
Arbroath	1/7	1/7	1/7	1/7	1/7	1/7	1/8	1/1	
Ayr	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/3	
Bathgate	1/10	1/10	1/10	1/10	1/10	1/10	1/9	1/3	
Blairgowrie	1/7	—	1/7	1/7	1/7	1/7	1/7	—	
Bo'ness	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	2/-	1/8	
Coatbridge	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½	
Dumbarton	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/3	
Dumfries	1/6	1/6	1/6	1/6	1/6	1/8	1/8	1/2 1/2½	1/3½
Dundee	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/3	
Dunfermline	2/0½	2/0½	2/0	2/0	2/0½	2/0½	—	1/7½	
Duns	1/6	1/6	1/6	1/6	1/6	1/6	1/6	1/0	
Edinburgh	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½	
Falkirk	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/3	
Fort William	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/2½	
Galashiels	1/8	1/8	1/8	1/8	1/8	1/8	—	—	
Glasgow	1/10	1/10	1/10	1/10	1/10	1/10	1/10	1/5	
Greenock	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/1 to 1/3	
Hamilton	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/7½	
Hawick	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/3	
Helensburgh	2/0½-1/10½	2/0½-1/10½	2/0-1/10	2/0½-1/10½	2/0½-1/10½	2/0-1/10	1/9	1/7½ to 1/5½	
Inverness	1/6½	—	1/6	1/7	1/6½	1/9	1/6	1/0 to 1/3	
Kilmarnock	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/3	
Kirkcaldy	1/8	1/8	1/8	1/8	1/8	1/8	—	1/3	
Kirkwall	1/9	1/9	1/9	1/9	1/9	1/9	—	1/2	
Lanark	1/8	1/8	1/8	1/8	1/8	1/8	—	1/3	
Motherwell	1/8	1/8	1/8	1/8	1/8	1/8	—	1/3	
Perth	1/8	1/8	1/8	1/8	1/8	1/8	1/7	1/2	
Stirling	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/3	
Stirlingshire (Eastern District)	1/8	1/8	1/8	1/8	1/8	1/8	1/9	1/3	
Wishaw	2/0½	2/0½	2/0½	2/0½	2/0½	2/0½	—	1/7½	

* The information given in this table is copyright. The rates of wages in the various towns in England and Wales are given on page 962.

JUNE 30.—**Birmingham.**—BATHS.—Erection of baths at King's Heath and Harborne, for the T.C. Mr. R. Hoggins, Superintendent Engineer, Kent-street, Birmingham. Deposit £2.

JUNE 30. — **Evesham.** — ALTERATIONS.—Alterations to premises, 18 & 19, High-street, Evesham (corner of Avon-street), preparatory to street widening. Mr. Harold E. Dicks, M.S.A., architect, 1, Market-place, Evesham. Deposit £1 1s.

✱JUNE 30.—**Long Wittenham.**—FENCING AND GATES.—Erection of fencing and gates at Long Wittenham, Berks., for the Berkshire County Council. The Director of Agriculture, 11, Abbot's-walk, Reading.

JUNE 30.—**Milford Haven.**—DWELLING HOUSE.—For alterations and converting house outbuildings into a dwelling-house at Point Hakin, for Mr. Munning. H. Veder Elford, architect and surveyor, Milford Haven.

JUNE 30.—**Monmouthshire.**—COTTAGES, &C.—(a) Cottage on smallholding near Crick, (b) cottage on holding near the village of Caerwent, (c) small set of farm buildings on holding one mile from Portskewett Station, for the Monmouthshire Agricultural Committee. Mr. A. Every-Clayton, County Land Agent, No. 2, Gold Tops, Newport, Mon.

✱JUNE 30.—**North Wales.**—WAR MEMORIAL.—Erection of war memorial, University College of North Wales, Bangor, North Wales Heroes' Memorial. Registrar, Major W. P. Wheldon, D.S.O., M.A., University College of North Wales, Bangor. Mr. D. Wynne-Thomas, architect, Jubilee Buildings, Bolton. Deposit £2 2s.

JUNE 30.—**Panteg.**—FARM BUILDINGS.—(a) Farm buildings at Sluvad Farm, Panteg, (b) farm buildings at Sluvad Farm, Panteg, (c) farm house and buildings in Llanishen, for the Monmouthshire Agricultural Committee. Mr. A. Every-Clayton, County Land Agent, 2, Gold Tops. Newport, Mon.

JUNE 30.—**Stratford-on-Avon.**—BOILER HOUSE.—Erection of boiler house and foundation work at gasworks, for the T.C. Mr. F. Shewring, Engineer, Gasworks, Stratford.

JULY 1.—**Christchurch.**—INFIRMARY.—Erection of an Infirmary at the Institution, Fairmile House, for the Guardians of Christchurch Union. Mr. A. Druitt, Clerk to the Guardians, Christchurch. Deposit £5.

JULY 1.—**Ebbw Vale.**—PAINTING.—Painting, &c., at (a) Pontygof Girls' School; (b) Victoria School, for the U.D.C. Mr. W. A. Jones, Secretary, Council Offices, Ebbw Vale, Mon.

JULY 1.—**Sherburn Village.**—COTTAGES.—Erection of six cottages at Sherburn Village, for the Durham Aged Mineworkers' Homes Association. Mr. F. Charlesworth, Heather View, Littletown, Durham.

JULY 3.—**Bristol.**—ALTERATIONS.—Conversion of an existing timber and galvanised sheet iron building into new pay and time offices, for the Dock Committee. Mr. Thomas A. Peace, Engineer, Avonmouth Docks. Deposit £2.

✱JULY 3.—**Essex.**—BUILDING.—Erection of Headquarters, 5th Battalion Essex Regiment, at Dunmow, for the Territorial Army Association, County of Essex, Market-road, Chelmsford. The Secretary.

JULY 3.—**Glasgow.**—HOUSES.—Erection of 348 tenement houses at Hamilton Hill, Possilpark, for the T.C. Mr. J. Lindsay, Town Clerk, City Chambers, Glasgow.

JULY 3.—**Halifax.**—HOUSES.—Erection of 32 scullery houses at Wakefield-road and 12 parlour and eight scullery houses at Boothtown, for the T.C. Mr. Percy Saunders, Town Clerk, Town Hall, Halifax. Deposit £2 2s.

JULY 3.—**Paddock.**—PAINTING.—Painting of the outside of Paddock Church Schools. Caretaker, Lark-street, Paddock, Huddersfield.

✱JULY 3.—**Southend-on-Sea.**—SHELTERS.—Erection and completion of two shelters on the Eastern Esplanade, Thorpe Bay, for the Corporation of Southend-on-Sea. Mr. R. H. Dyer, Borough Engineer, Municipal Buildings, Southend-on-Sea. Deposit £2 2s.

JULY 3.—**Withnell.**—PAINTING.—For painting at gasworks, for the U.D.C. Gas Manager, Withnell.

JULY 4.—**Barking.**—HOUSES.—Erection of 40 houses of various types on the Greatfields Estate, Ripple-road, for Barking Town U.D.C. Mr. C J. Dawson, F.R.I.B.A., Clock House Chambers, East-street, Barking. Deposit £2.

JULY 4.—**Brighton.**—BUILDING.—Erection of a sorting office and telephone exchange at Brighton, for the Commissioners of His Majesty's Works, &c. Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W.1. Deposit £1 1s.

JULY 4.—**Cork.**—HOUSES.—Erection of 36 houses at Wycherley site, for the T.C. Messrs. W. H. Hill & Son & Flanagan, architects, 28, South Mall, Cork. Deposit £1.

JULY 4.—**Salisbury.**—WALL.—Erection of boundary wall at St. Nicholas-road, for the T.C. City Engineer, Salisbury.

JULY 4.—**Tunbridge Wells.**—VARIOUS WORKS.—For work to the buildings of the Tunbridge Wells Friendly Societies' Club and Institute. Mr. F. E. Collins, Secretary, Tunbridge Wells.

✱JULY 6.—**London, S.W. 2.**—REPAIRS AND REDECORATIONS.—Repairs and redecorations to the Church and Chapel, &c., at the Lambeth Cemetery, Blackshaw-road, Tooting, S.W., for the Metropolitan Borough Council of Lambeth. Mr. H. C. Anderson, Borough Engineer, Lambeth Town Hall, Brixton-hill, S.W. 2.

JULY 6.—**Rhosllanerchrugog.**—DRILL HALL.—Erection, for the Denbighshire T.A. Association, of a drill hall and miniature range at Rhosllanerchrugog. Captain Gronwy Griffith, architect, Post Office-lane, Denbigh.

✱JULY 7.—**London, W.**—KIOSK.—Erection of a refreshment kiosk in St. James's Park, London, for the Commissioners of His Majesty's Office of Works. Contracts Branch, H.M. Office of Works, King Charles-street, London, S.W. 1. Deposit one guinea.

JULY 10.—**Wallasey.**—HOUSES.—Erection of four cottages at Waterloo Farm, Sealand, near Chester, for the T.C. Mr. George Livsey, Town Clerk, Town Hall, Wallasey. Deposit £1 1s.

✱JULY 11.—**London, E.17.**—RENOVATIONS AND PAINTING.—Carrying out certain work of school renovations in painting, distempering, &c., to the interiors of three schools for the Walthamstow Education Committee. Mr. H. Prosser, Architect to the Committee, 263, High-street, Walthamstow, E.17.

JULY 12.—**Carlisle.**—PAINTING.—Painting and other works required to be done in four of the elementary schools, for the T.C. Mr. Henry C. Marks, Surveyor, Fisher-street, Carlisle.

JULY 12.—**London, E.**—STEEL AND REINFORCED CONCRETE.—Extensions and alterations to the Limehouse Electricity Generating Station, Narrow-street, Limehouse, E.14 (Contract No. 249), composed of steel framing and reinforced concrete, for the Council of the Metropolitan Borough of Stepney. Borough Engineer and Surveyor (Mr. Bernard J. Belsher, A.M.I.C.E., M.I.M.E.) at the Municipal Offices, Raine-street, Old Gravel-lane, E.1, between 10 a.m and noon. Deposit £5 Bank of England Note.

JULY 13.—**Lanchester.**—BUNGALOWS.—Erection of bungalows, as follows: Eight bungalows at Esh Winning, 10 bungalows at Langley Park, 14 bungalows at Lanchester, for the R.D.C. Mr. Thomas E. Taylor, L.R.I.B.A., Union Offices, Lanchester.

NO DATE.—**Barnsley.**—GARAGE.—Erection of garage, for the Barnsley and District Grocers' Co., Ltd. Mr. N. A. Whitham, architect, "Chronicle" Buildings, Barnsley.

✱NO DATE.—**Erith.**—BUILDING.—Construction of 42 partially built cottages, of which approximately all the brickwork is finished, for the Erith U.D.C. Mr. Jno. Atkinson, Clerk, Council Offices, Erith. Deposit £1.

NO DATE.—**Hemsworth.**—PICTURE HOUSE.—Erection of Empire Picture House. Mr. Charles D. Swale, architect, 34, Francis-street, Leeds.

NO DATE.—**Lusk.**—CHURCH.—Erection of a new church at Lusk, Co. Dublin, for the Rev. J. Fennelly, P.P. Mr. James Mackay, quantity surveyor, 58, Dame-street, Dublin. Deposit £3 3s.

NO DATE.—**Nottingham.**—PAVILION.—Erection of a pavilion on the Recreation Grounds, Sherwood, for the T.C. Mr. T. Wallis Gordon, Acting City Engineer, Guildhall, Nottingham.

NO DATE.—**Smethwick.**—CINEMA.—Erection of cinema at Cape-hill, Smethwick. Mr. W. H. Higginbottom, architect, Nottingham.

NO DATE.—**Tonrefail.**—BUILDING.—For reconstruction, after fire, of the Cinema, School-street, Tonrefail, and conversion to Church Hall and Institute. Mr. W. S. Morgan, M.S.A., 194, Ystrad-road, Pentre. Deposit £3 3s.

NO DATE.—**Torquay.**—WINDOW.—The Ellacombe Church Council, Torquay, invites tenders for the removal of the glass from five lights of the East Window of the church, and its replacement by new stained glass (to be provided by the Council). Hon. Secretary of the Council, 13, Windsor-road, Torquay.

FURNITURE. MATERIALS, etc.

JUNE 26.—**Bethnal Green.**—MATERIALS.—Supply of drain pipes, &c., Portland cement, to the B.C. Mr. A. E. Darby, Borough Engineer, Town Hall, Cambridge-road, Bethnal Green, E.2.

JUNE 26.—**Doncaster.**—STORES.—Supply of stores to the Great Northern Railway Co. Mr. Weeks, Stores Superintendent, Doncaster.

JUNE 27.—**Dublin.**—STORES.—Supply of stores to the Midland Great Western Railway Co. of Ireland. Storekeeper, Stores Department, Broadstone Station, Dublin. Charge, 6d. each schedule (48).

JUNE 30.—**London.**—ELECTRIC LAMPS.—Supply to the Commissioners of His Majesty's Works, of incandescent electric lamps. Controller of Supplies, H.M. Office of Works, &c., King Charles-street, Westminster, London, S.W.1.

JULY 3.—**South Africa.**—PAINT.—Supply to the South African Railway Board of red oxide paint in paste. Dept. of Overseas Trade, 35, Old Queen-street, S.W.

JULY 14.—South Africa.—PORTLAND CEMENT.—**For the supply of 100,000 bags, or 50,000 casks, of Portland cement, of quality equal to British standard specification, for the Kamanassie Irrigation Board, Oudtshoorn Department (Room 41), 35, Old Queen-street, London, S.W.1.**

ENGINEERING, IRON AND STEEL.

JUNE 24.—**Gosport.**—BRIDGE.—Construction of new ferro-concrete bridge, for the U.D.C. Surveyor, Gosport. Deposit £2 2s.

JUNE 26.—**Atcham.**—WELL.—Deepening existing brick well and other work in connection therewith at the Lea Cross Housing Scheme, for the R.D.C. Mr. H. Asher, Surveyor, 24, St. John's-hill, Shrewsbury.

JUNE 26.—**Ferniegair.**—BRIDGE.—Renewal of the bridge over the Hamilton and Ferniegair line at 6 miles, 37 chains, Ferniegair, for the Caledonian Railway Co. Engineer, Buchanan-street Station, Glasgow. Deposit £2 2s.

JUNE 27.—**Brynmawr.**—SEWER IRONWORK.—For the ironwork required in the construction of the outfall purification works, for the U.D.C. Mr. W. J. Lomax, 11, Fold-street, Bolton. Deposit £5.

JUNE 27.—**Reigate.**—TANKS, &C.—Supply to the T.C. of (1) Diesel engines and single phase alternators; (2) two steel tanks, 20 ft. diameter, for oil storage; (3) a 12-ton overhead traveller; (4) alteration in position of existing cast-iron water tank. Mr. C. H. Wordingham, 7, Victoria-street, Westminster, S.W. Deposit £3 3s. for (1); and £1 1s. for (2), (3) & (4).

JUNE 28.—**Johannesburg.**—LAMPS.—Supply of electric lamps and fittings, for the T.C. Department of Overseas Trade, 35, Old Queen-street, S.W.

JUNE 28.—**London.**—RAILS, &C.—Supply to the Bengal-Nagpur Railway Co. of 8,486 tons steel flat-footed rails and 365½ tons steel fish-plates. Company's Offices, 132, Gresham House, Old Broad-street, London, E.C.2. Charge £1 1s.

JUNE 29.—**South Africa.**—STEEL BUILDINGS.—**Supply to the South African Railways and Harbours of steel frame buildings for power station. High Commissioner for the Union of South Africa, Trafalgar-square, W.C.2. Deposit £5 5s.**

JUNE 29.—**West Riding of Yorks.**—BRIDGE.—For under-pinning the west abutment, &c., of Burholme Bridge, situate about 10 miles north-west of Clitheroe and near White Wells. Mr. H. R. Hepworth, West Riding Surveyor, County Hall, Wakefield. Deposit £1.

JUNE 30.—**Glasgow.**—ELECTRIC INSTALLATION.—For electric lighting installation for the Belvidere Hospital, for the T.C. Electrical Engineer, 75, Waterloo-street, Glasgow. Deposit £2 2s.

JUNE 30.—**London.**—BRIDGES.—Supply to the Madras and Southern Mahratta Railway Company, of girder bridges (one 6 ft., six 10 ft., two 22 ft., and thirty-two 60 ft.). Offices, 25, Buckingham Palace-road, Westminster, S.W. 1. Charge £1 1s.

JUNE 30.—**London.**—RAILWAY MATERIAL.—Supply to the South Indian Railway Company of (1) Steel screw couplings; (2) mild steel; (3) spare parts for carriage underframes and wagons; (4) white lead. Company's Offices, 91, Petty France, Westminster, S.W.1. Charge 10s. each contract.

JULY 1.—**Croydon.**—ENGINE.—Supply and setting to work of a steam pumping engine at the Surrey-street Waterworks, for the T.C. Borough Engineer, Town Hall, Croydon. Deposit £1 1s.

JULY 4.—**Manchester.**—ENGINEERING DAY WORK.—Supply of (1) electrical, (2) mechanical engineering labour in daywork in Manchester. Contracts Branch, H.M. Office of Works, London, S.W.1.

JULY 4.—**Swansea.**—RAILWAY.—Construction of a railway between Clydach and Pontardawe, near Swansea, total length about 3 miles, for the G.W.R. Co. Engineer, Paddington Station, London.

JULY 7.—**London.**—BUFFERS, &C.—Supply to the High Commissioner for India wrought-iron cylindrical buffers, &c. Director-General, India Store Department, Belvedere-road, Lambeth, S.E.1.

JULY 15.—**Epsom.**—VARIOUS WORKS.—(1) Installation of electric wiring of the buildings, motor, telephones, &c.; (2) supply and fixing of overhead electrical conductive and main cables, switchboards, &c.; (3) installation of laundry plant; (4) installation of kitchen plant; (5) installation of bakery plant, at the Eleventh Mental Hospital, Epsom, in course of erection, for the L.C.C. Asylums Engineer of the Council, Gloucester House, 19, Charing Cross-road, W.C. 2. Deposit, £5 each for (1) & (2); and £2 each for (3), (4) & (5).

JULY 15.—**The Bahamas.**—DREDGING.—For the dredging of an entrance channel and mooring basin in the Harbour of Nassau, New Providence, Bahama, for the Government. Crown Agents for the Colonies, 4, Millbank, Westminster, S.W.1. Deposit £10.

JULY 17.—**Gravesend.**—PLANT, &C.—Supply of electrical plant and construction of artesian well, for the T.C. Mr. C. F. McInnes, Borough Electrical Engineer, Gravesend. Deposit £2 2s.

JULY 19.—**St. Helens.**—RAILS, &C.—Supply to the T.C. of 800 tons of tram rails, fishplates, &c. Mr. A. W. Bradley, Borough Engineer, St. Helens.

JULY 26.—**Newmarket.**—STEAM ROLLER.—Supply of 10-ton steam roller, with scarifier, for the R.D.C. Mr. S. J. Ennion, Clerk, Deva Chambers, Newmarket.

AUGUST 1.—**Siam.**—RAILWAY CARRIAGES.—**For the supply of 25 underframes for bogie carriages, for the Department of State Railways. Messrs. C. P. Sandberg, 40, Grosvenor-gardens, S.W. 1. Charge £2.**

OCTOBER 31.—**New South Wales.**—BRIDGE.—**Construction of the superstructure and substructure of a cantilever bridge across Sydney Harbour from Dawes Point to Milson's Point, for the Government of New South Wales. Agent-General for New South Wales, Australia House, Strand, London, W.C. 2.**

ROAD, SANITARY, AND WATER WORKS.

JUNE 24.—**Kirkcaldy.**—SEWERS.—Construction of sewers at Lumphinnans, for the District Committee of the Fife C.C. Messrs. Carter & Wilson, 51, Queen-street, Edinburgh. Deposit £1 1s.

JUNE 24.—**Morley.**—ROADS.—Surfacing of main streets and footpaths, and erection of fences, &c., at Victoria-road housing site, for the T.C. Mr. F. Turner, Borough Engineer, Town Hall, Morley.

JUNE 24.—**Tadcaster.**—WATER SUPPLY.—(1) Laying about 1,010 yards of 5 in. cast-iron water pipes; and (2) providing and laying about 1,076 yards of 4 in.; and (3) providing and laying about 818 yards of 3 in. cast-iron water pipes. Mr. H. M. Driver, surveyor, Garforth, near Leeds.

JUNE 26.—**Altrincham.**—SEWERS.—Relaying about 750 lineal yards of sewers, &c., for the U.D.C. Mr. H. E. Brown, Town Hall, Altrincham.

JUNE 26.—**Birmingham.**—ROADS.—Construction of about 450 lin. yards of road (including about 190 yards of 9 in. sewers) at the Corporation Housing Estate, at Washwood Heath. Mr. Herbert H. Humphries, City Engineer, The Council House, Birmingham. Deposit £2.

JUNE 26.—**Carlisle.**—ROADS.—Construction of tar macadam footways and gravel verges, and gravel footways, at Long Sowerby Housing Estate, for the T.C. Mr. Henry C. Marks, City Engineer, 15, Fisher-street, Carlisle.

JUNE 26.—**Cockenzie.**—ROADS, &C.—(1) Finishing of roads, kerbing, &c.; (2) iron fencing, &c. Messrs. R. & A. K. Smith, surveyors, 44, Queen-street, Edinburgh.

JUNE 26. — **Edinburgh.** — CRICKET GROUND. — Laying down two cricket squares at Slateford Recreation Ground, for the T.C. Mr. John Stewart, Executive Officer, Castle-terrace, Edinburgh.

JUNE 26.—**Hendon.**—ROADS.—Laying of about 4,000 yards super. of 8 in. or 9 in. by 3 in. by 4 in. creosoted deal blocks paving (renewals) in Finchley-road and Cricklewood-lane, for the U.D.C. Mr. A. O. Knight, Surveyor, Town Hall, Hendon, N.W.4. Deposit £2 2s.

JUNE 26.—**London.**—PAVEMENT REPAIRS.—Repairs to the pavements of Blackwall and Rotherhithe Tunnels, for the London C.C. Chief Engineer of the Council, Gloucester House, 19, Charing Cross-road, W.C.2. Deposit £3.

JUNE 26.—**Manchester.**—PAVING.—Making up Parrott-street, Clayton, for the T.C. Paving, &c., Department (District Surveyor's Office), Town Hall, Manchester. Deposit £1 1s.

JUNE 26. — **Middlesbrough.** — TRAMWAY TRACK AND ROAD PAVING.—For the laying of a double line of tramways (permanent way and track), including road paving, &c., at Linthorpe-road, Linthorpe-avenue, and Linthorpe-crescent. Total length of 815 lineal yards of double line, or 1,630 of single track. Mr. S. E. Burgess, M.Inst.C.E., Borough Engineer and Surveyor, Municipal Buildings, Middlesbrough.

JUNE 26.—**Port Talbot.**—SEWERAGE WORKS.—Construction of Cwmavon sewerage scheme, for the T.C. Borough Engineer, Municipal Buildings, Port Talbot. Deposit £3 3s.

JUNE 27. — **Gosforth.** — ROADS. — Construction of roads, &c., in connection with the housing site at Coxlodge, for the U.D.C. Mr. George Nelson, Surveyor, Council Chambers, Gosforth.

JUNE 27.—**Nuneaton.**—WATER WORKS.—Excavating for, laying and jointing of about 22,000 lin. yards of 14 in. cast-iron socketed pipes, for the T.C. Mr. R. C. Moon, Water Engineer, Municipal Offices, Queen's-road, Nuneaton. Deposit £3 3s.

JUNE 27.—**Warwickshire.**—ROAD.—Construction of a new main road, about 1¼ mile long and 60 ft. wide, at West Bromwich. Mr. D. H. Brown, County Surveyor, Warwick. Deposit £2.

JUNE 28.—**Durham.**—ROADS.—For works of drainage, kerbing and channelling, strengthening, surfacing with tarmacadam, and paving with granite setts, on various main roads within the County. Mr. Albert E. Brookes, County Surveyor, Shire Hall, Durham.

JUNE 28.—**Failsworth.**—BOWLING GREENS, &C.—Laying out and construction of two bowling greens and six tennis courts at new recreation grounds, for the U.D.C. Mr. J. W. E. Brown, Surveyor, Town Hall, Failsworth, near Manchester.

JUNE 28.—**Halberton.**—ROADS.—For the widening, draining, &c., of the Tiverton-Wellington main road, near Halberton, for the Devon C.C. Mr. F. E. Simpson, County Surveyor, 17, Bedford-circus, Exeter.

JUNE 28.—**Hollingbourne.**—SEWER.—Construction of a new line of sewer from Headcorn Railway Station to the main sewer in High-street, Headcorn, for the R.D.C. Mr. F. Miskin, Clerk, 33, Earl-street, Maidstone.

JUNE 28.—**Holywell.**—WATER SUPPLY.—Providing and laying about 4 miles of cast-iron water mains, for the U.D.C. Messrs. Williams & Clarke, Civil Engineers, 5 and 6, Godstall Chambers, Chester.

JUNE 28. — **Walthamstow.** — TAR PAVING.—For forming tar paved tennis courts, &c., at the Higham Hill Recreation Ground and at Lloyd Park, for the U.D.C. Mr. G. W. Holmes, A.M.I.C.E., Town Hall Annexe, Walthamstow.

JUNE 29.—**Edinburgh.**—PLAYGROUND.—Laying of the playground at George Heriot's School, Lauriston-place, with tar macadam. Mr. John Anderson, F.S.I., Superintendent of Works, 20, York-place, Edinburgh.

JUNE 29.—**Hertford.**—SEWER.—Construction of sewer and outfall works at Benington, for the R.D.C. Mr. J. W. Riggs, 21, Trinity-grove, Hertford.

JUNE 30.—**Cowdenbeath.**—SEWER.—Construction of a reinforced concrete sewer, for the T.C. Burgh Surveyor, Town House, Cowdenbeath.

JUNE 30.—**Northamptonshire.**—ROADS.—For various works on the London–Holyhead road (Watling-street), between Old Stratford and Weedon, for the C.C. Mr. C. S. Morris, County Surveyor, County Hall, Northampton.

JULY 3.—**Fowey.**—WATERWORKS.—Construction of storage and service reservoirs, laying supply mains, erection of pump house, and other works, for the T.C. Mr. James D. Haworth, consulting engineer, Alliance House, 15, Dartmouth-street, Westminster, S.W.1. Deposit £5 5s.

JULY 3.—**Halifax.**—SEWERAGE WORKS.—Extension of main sewerage, for the T.C. Messrs. Howard Humphreys & Sons, 28, Victoria-street, Westminster, S.W.1. Deposit £1 1s.

JULY 3.—**Stafford.**—WATERWORKS.—Laying about 3,400 yards of 12 in. diameter cast-iron pipes and special castings, and other works, for the T.C. Mr. W. Plant, Borough Engineer, Borough Hall, Stafford. Deposit £2 2s.

JULY 3.—**Stirlingshire.**—WATER WORKS.—For construction of water works at Loch Coulter, for the Stirlingsh re and Falkirk Water Board. Messrs. Warren & Stuart, 94, Hope-street, Glasgow. Deposit £2 2s. for each of three contracts.

JULY 4.—**Leeds.**—ROADS.—Making light macadam roads on the Beckett-street Estate of the Board of Guardians. Mr. James H. Ford, Clerk, Poor-Law Offices, South Parade, Leeds.

JULY 8.—**Macclesfield.**—SEWAGE PLANT.—Supply and erection at Butley sewage disposal works of four revolving distributors, for the T.C. Mr. J. H. Edmondson, Sewage Manager, Prestbury, near Macclesfield.

JULY 10.—**Wellington (Salop).**—SEWERAGE WORK.—For construction of sewers, for the U.D.C. Mr. G. H. Connor, Surveyor, Council Offices, Wellington. Deposit £5.

JULY 11.—**Carlton.**—SEWERAGE WORKS.—For construction of Lower Netherfield Sewerage Works, for the U.D.C. Mr. Austin H. Elliott, Surveyor, Carlton, Nottingham. Deposit £4 4s.

NO DATE.—**Hedon.**—ROADS.—Draining and resurfacing of a road in Hedon, East Yorkshire, approximately three-quarters of a mile in length and 18 ft. in width, for the T.C. Mr. H. Andrew, Borough Surveyor, Custom House Buildings, Whitefriargate Hull.

Competitions.

(*See Competition News, page* 934.)

Auction Sales, Tenders, etc.

JUNE 27.—**London, S.W.**—Messrs. Veryard & Yates, F.A.I., will sell without reserve at 255, Clapham-road, at 1.30 p.m., timber, fittings, and building materials. Auctioneers, 365, Norwood-road, S.E.27.

★JUNE 27.—**Sudbury, Middlesex.**—Messrs. Davis & Moon will sell *re* W. A. Bennett, Ltd., by order of the Receiver for debenture holders, at the Depôt, Railway siding, Sudbury Station (G. C. Rly.), stock of a builders' merchant: Machinery, sheds, &c. Auctioneers, 285, Borough High-street, S.E. 1.

JUNE 27, 28 AND 29.—**Kidbrook, S.E.**,—Messrs. Dennant & Laver will sell, by direction of the Disposal Board, at No. 1, Stores Depot, R.A.F., Kidbrook, S.E.3, furniture, hardware, carpets, linoleum and building materials. Auctioneers, Bank Buildings, 239, Lewisham High-road, S.E.4.

JUNE 28.—**London, W.C. 2.**—Messrs. Weatherall & Green will sell, *re* Brooks' Holeproof Clothing Co., Ltd. (by order of the Receiver for the Debenture Holders), at 14, 16 & 18, Lamb's Conduit-street, W.C., office furniture and equipment, &c. Auctioneers, 22, Chancery-lane, W.C. 2.

JUNE 29 AND 30.—**Cambridge.**—Messrs. Arthur Rutter, Sons & Co. will sell, by direction of the Disposal Board, at Fowlmere Aerodrome, Cambs., four miles from Royston Station, G.N.R., buildings and fitments. Auctioneers, 62, Sidney-street, Cambridge, and 30, Abbeygate, Bury St. Edmunds.

JULY 4 & 5.—**Herts.**—Messrs. Joseph Hibbard & Sons will sell at the Depot, Marshmoor Mill, Herts. (without reserve), by order of Messrs. Timber Operatives & Contractors, Ltd., stock of dry English timber, ash, oak, &c. Auctioneers, 15, Newington-green, Islington, N.16.

JULY 5.—**Tonbridge, Kent.**—Messrs. Toplis & Hading will sell, at the London Auction Mart, 155, Queen Victoria-street, E.C., the valuable freehold property known as Quarry Hill Brick & Tile Works, situate off Quarry Hill-road, about 1 mile from Tonbridge Station, main line. Auctioneers, 28, Old Jewry, E.C.2.

★JULY 6 AND 7.—**Boston.**—Messrs. Simons, Ingamells & Young are instructed by the trustees of the late Mr. H. Lucas to sell upon the premises situate in West-street, Boston, the whole of the builders' and contractors' stock-in-trade, materials and machinery, three "National" gas engines (14, 10, 8½ h.p.), ironmongery, &c. Auctioneers, Wide Bargate, Boston, Lincs.

JULY 10, 11 AND 12.—**Newbury, Berks.**—Mr. L. E. Shergold, A.A.I., will sell at the Rockingham-road housing site, at 12 o'clock, building materials, plant, machinery, timber, &c. Auctioneer, Market-place, Newbury.

★JULY 11.—**London, S.W. 1.**—Messrs. Rogers, Chapman & Thomas will sell on the premises Lease of the Modern Factory Premises, 35, Bessborough-place, S.W. 1 (near Vauxhall Bridge), at present equipped with up-to-date machinery as a high-class woodwork factory. Auctioneers, 50, Belgrave-road, Westminster, S.W. 1.

VARIOUS DATES. — **London, S.W.** — JUNE 28: Southfield factory, Merton-road, Wandsworth, freehold engineering works. JUNE 28: The Waddon Estate, Croydon, freehold factory and building land, situate at the junction of Stafford-road and the new London-Brighton relief road. DATE TO BE ANNOUNCED: London, S.W., six miles from Marble Arch, extensive modern factories, building land, gravel and sand. Auctioneers and agents for the above properties, Messrs. Goddard & Smith, 22, King-street, St. James's, S.W.

★WITHOUT RESERVE.—So far as the great majority of the lots are concerned. Sale of contractors' surplus plant and materials. June 27, Hammsmith; June 29, Avonmouth: July 11, Biggleswade. Auctioneers, Messrs. Goddard & Smith, 70, Seymour-place, W.1.

Public Appointments.

JULY 7.—**Middlesex.**—Lecturer required in Sanitary Engineering for the Session commencing in September next, one evening per week, by the Middlesex Education Committee, at the Acton and Chiswick Polytechnic. Mr. V. C. Egerton, Principal, Bath-road, Chiswick, W.4.

★NO DATE.—**East Ham.**—TEACHER OF PLUMBERS' WORK.—Required, a teacher of plumbers' work to prepare candidates for the City and Guilds of London Institute examinations by the County Borough of East Ham Education Committee, for the East Ham Technical College, Evening Classes. Mr. F. R. Thompson, Secretary, Education Office, Town Hall, East Ham, E.

RENT RESTRICTION.

It is reported that at the conference of the National Federation of Property Owners, held at Glasgow, a resolution was passed, calling for a clear definition of the position of landlords and tenants at the termination of the Rent Restriction Act, and for a return to freedom of contract. The Rent Restriction Act will expire on June 24, 1923, and it is time that those interested in house property made some organised attempt to make their voices heard with no uncertain sound. Suggestions are made, from time to time, as to how the evil effects of the Rent Restriction legislation could be mitigated, as though it were a measure which could never be repealed altogether, but it is only a survival of war legislation, and there is no excuse for its continuation beyond the already extended period of another year. "It is hardly necessary to recapitulate the arguments," writes a correspondent, "against this partial legislation, which, in operation, only favours even a small section of the same class, and which, in time of peace, is an anomaly. Rent restriction is unfair to property owners, unequal in its incidence as amongst tenants, restricts accommodation, hinders building, and is costly to the nation, as it fosters litigation. Compromise on this subject is out of the question, as all that is required is the repeal of the Act, the whole Act, and nothing but the Act. We imagine the real sense of the nation would be opposed to a continuation of such a measure if instructed as to its actual influence."

THE PLUMBING TRADES' APPRENTICESHIP SCHEME.

For the purpose of discussing points in connection with the scheme of apprenticeship arranged by the National Council, a joint gathering of representatives from the employers and operatives in the north-east coast district, under the auspices of the Plumbing Trades' National Apprenticeship Council, was held at Newcastle on June 17, Mr. E. Lesser, of London (Chairman of the National Council, and representing the Ministry of Labour), in the chair. The master plumbers were represented by Mr. A. Butterworth, of Oldham (President of the Institute of Plumbers), Mr. S. H. Uttley (Sheffield), and Mr. A. E. Wilcockson (Manchester), from the National Registration Council; whilst the operative plumbers were represented by Mr. S. Sigsworth (London), President of the Operative Plumbers' Association, Mr. H. Hoey (District Secretary Midland Area), Mr. T. McMenemy (Newcastle), Mr. R. H. Bew (Secretary London Local Apprenticeship Council), and others. Dr. R. S. Clay (Secretary of the Institution of Technical Associations) attended on behalf of the associated trades and interests. Mr. Lesser outlined the scheme, and at the conclusion of the meeting Mr. Cairns said that, subject to certain amendments which could be settled amicably, his association would, no doubt, adopt the scheme.

THE USES OF CONCRETE.

Concrete is now so extensively used for what might be called minor purposes, such as fence-posts, cattle troughs, outbuildings, ponds, pipes, tanks, walling, culverts, piggeries, &c., on estates and farms, and ordinary farm labour is so often utilised for the work that there is a possibility that the ease with which such structures and articles may be formed in this plastic material will lead to insufficient attention being given to the carrying out of the work.

If satisfactory results are to be obtained the greatest care is necessary in the mixing and placing of concrete, and it would always be better if such work were placed in the hands of a local builder, but a series of publications issued by the Concrete Utilities Bureau, of 35, Great St. Helen's, E.C.3, which has been formed for the purpose of giving advice on all matters relating to concrete will be found of considerable service not only to estate owners who are contemplating carrying out concrete work themselves, but also to builders who may be called upon to do such work. These pamphlets—sixteen in number—cover practically every use to which concrete may be put, apart from the construction of large buildings, and are supplied gratis to those interested. The Bureau also has a very interesting exhibition of concrete products at 143, Grosvenor-road, Vauxhall, S.W.1, which is open (free) daily, between 10 a.m. and 4 p.m.

NEW INVENTION.

CONCRETE BLOCK CONSTRUCTION.

By JAMES HOUSTON, A.R.I.B.A.

"MAN is the victim of circumstance," and certainly in many instances this statement seems absolutely true. How often can one point to acquaintances who were the creatures of circumstances over which they had practically no control; and yet the fallacy of the above statement is obvious, because there are multitudes of cases of people who rose triumphant over their environment and left work of lasting benefit to mankind. What applies to man in this applies equally well to his undertakings, which are often seemingly the plaything of fate. It applies to housing schemes and other undertakings of a similar nature, schemes which were likely to have been dropped, having been undertaken at an unfortunate time, but which are now likely to be carried to completion.

The "Wilkielock" system of concrete construction was introduced into England just at the time the Ministry of Health decided to curtail the building programme, and about the time it was realised that owing to the heavy commitments for bricks it would be necessary to discourage concrete so that these bricks could be used up before the end of July, 1922. Under these circumstances the send-off was not a very happy one. The first "Wilkielock" house built in England was built in the Midlands, and embodies many economical features of interest.

The photographs of the house give an indication of the possibilities for external and internal decoration. The house was designed to give the best results as regards warmth in winter and coolness in summer, and this was obtained by making the outer walls of clinker concrete (6–1) slabs 2¼ in. thick, faced at the time of manufacture with ¾ in. of 4–1 cement mortar, the sand being similar to that obtained by pulverising sandstone; a 4½ in. space was left, and the inner slabs were made of coke breeze and cement, also 2¼ in. thick. The result of this combination was, it is stated, all that could be desired as regards warmth, and there was absolutely no condensation. Owing to scarcity of plasterers and high cost of plastering it was decided to dispense with plaster for finishing the walls and ceilings, and as a substitute canvas was used, pasted direct to the walls and left its natural colour without painting. The ceilings were finished by nailing the canvas direct to the top of the ceiling joists and laying the floor-boards directly on to the top, giving an old-world appearance to the ceiling. The roof was covered with concrete roofing tiles. The house was ready for occupation as soon as the canvas was hung. All corner stones, sills, window and door jambs, mullions, lintels, and slabs were manufactured by the "Wilkie" machines, an outfit which can be transported in an ordinary cart. The Education Authorities in and around Glasgow have adopted the system for numerous schools. As an example, a new higher-grade school in Lanarkshire was estimated to cost £14,000, but by adopting the "Wilkielock" system and using the same stone, crushed and applied about ¾ in. thick, as a facing to give the same appearance, the cost was, I am informed, reduced to £7,000.

This system is claimed to be cheaper than brick, durable, and to give the architect ample scope to develop the æsthetic as well as the practical in his work.

The system is explained in the diagram on p. 965. The main feature is the formation of the various stones. The headers are mortice-shaped on each end, as in Fig. 1; and the stretchers, of any thickness, are bevelled on their ends to suit (Fig. 2). Door and window upstarts or jambs of any shape are also grooved to fit the stretchers (Fig. 3). Corner stones are moulded in the same way with long and short outbend, so that by reversing the stone in building the proper bonding is made; the stretchers are also grooved into them, and there is no possibility of the stretchers being pushed in or pulled out from the level surface even if built without mortar (Fig. 4). The building of a cavity wall in box form is one of the strongest that can be obtained, the cavity being sufficient for evaporation to render the interior wall impervious to moisture. Where the cavity may require to be lessened in building thinner walls or in using thicker stretchers, the headers are treated in a patent method of insulation which renders them impervious to water, ensuring a dry inner wall. Any design of artificial stone can be used on the outer or inner walls, or they may be left for plastering. Artificial stones of practically any shape can be moulded to suit the system, and the cost is claimed to be one-half that of stone, and considerably less than brickwork.

The machines for moulding and compressing the stones, for which no power is required, can be operated very quickly by unskilled labour. Two machines only are required for the production of the whole material for a cottage or bungalow.

Messrs. Wilkie and Co., 161, Millerfield-road, Bridgeton, Glasgow, the manufacturers, are now preparing to send their machines to building contractors in many parts of the world on a royalty basis of what they are prepared to prove is one-tenth of the saving gained by using their system. Several houses have now been completed in Wolverhampton, the cost of which is stated to be £75 each less than brickwork. The system is applicable to any size of public or private building, and has been accepted by the Dean of Guild and other public authorities. It should be mentioned here that "Tilleur" cement only has been used throughout, and the results obtained are proof of the quality and value of this artificial cement.

Mr. William Wilkie is the inventor of the system.

INTERIOR.

House on "Wilkielock" system of Concrete Construction.

EXTERIOR.

House on "Wilkielock" system of Concrete Construction.

British Institute of Certified Carpenters.

The annual summer outing in connection with the Incorporated British Institute of Certified Carpenters will be held to-morrow (Saturday) at Liverpool and Eastham. The programme will include a visit to Liverpool Cathedral, by kind permission of Mr. G. Gilbert Scott, R.A.

PROPOSED NEW BUILDINGS & OTHER WORKS.*

IN these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works at the time of publication have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C for Rural District Council; E.C. for Education Committee; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

ABERDARE.—The Ministry of Health has approved sites chosen by the U.D.C. for the erection of public conveniences.——The Council has decided to purchase the Vestry Hall, Aberdare, for conversion to offices.——The Ministry of Health and the Welsh Board of Health are to be asked to approve of a joint scheme by the Aberdare and Mountain Ash district councils for the erection of an isolation hospital at Aberdare.——To a deputation of the local Chamber of Trade the manager of the G.W.R. has promised station alterations and a new booking hall, plans of which are being prepared.

ALNWICK.—The U.D.C. is sending a deputation to the Ministry of Health to urge that sanction be given for the erection of 48 houses.

ASHBURTON.—Plans passed by U.D.C.:—Additions to Girls' Hostel at Hazelwood, for Mr. Naylor.

BARNSLEY.—It has now been definitely decided that the Barnsley war memorial, which is estimated to cost £5,000, will take the form of a pedestal 35 ft. high, with a figure of Victory in bronze relief at the rear. It will be erected on the site of the proposed new Town Hall.

BARRY.—A joint meeting of the U.D.C., Chamber of Trade, and Ratepayers' Association representatives has recommended the Council to proceed with an electrical scheme that will involve expenditure of £20,000 in cable laying and gas works alterations and installations.

BIRKENHEAD.—Plans passed by T.C.: Workshop, Ship-yard, for Mr. Levi Richardson; 73 houses, Park-avenue site, for the Housing Committee of the County Borough of Warrington.

BRIDGE.—Plans passed by R.D.C.:—Bungalow at Hollow-lane, Thanington, for Mr. Alfred Hoare; at Chartham Hatch, for Mr. A. Jacob; and for two bungalow cottages at Kingston, for Mr. F. C. Clark.

CARDIFF.—The Corporation Housing Committee have decided to apply for sanction to the Ministry of Health to erect a further 600 houses at Ely. Forty houses, for which reduced estimates have been submitted, were commenced at Ely this week.

CARLISLE.—The City Council have received sanction from the Ministry of Health to borrow the sum of £8,100 for the purpose of constructing a new road between Dalston-road and Newton-road;—Plans passed by R.D.C.: Mr. Joseph Hope, Boustead Hill, for additions to a farm dwelling at Boustead Hill; Mr. H. H. Hodgkinson, architect, Lowther-street, on behalf of Mr. P. Scriven. Aglionby-street, Carlisle, for bungalow on land abutting Scotby Park-road; also on behalf of Mr. J. Watson, Aglionby, for the conversion of a barn into a dwelling at Aglionby; by Mr. J. M. Martindale, architect, Carlisle, on behalf of Mr. H. S. Graham, The Green, Wetheral, for the erection of a bungalow at Richmond Hill, Wetheral; by Mr. H. E. Scarborough, architect, Carlisle, on behalf of Miss Park, The Post Office, Rockliffe, for the conversion of an existing building into a dwelling.

COCKERMOUTH.—A scheme of bacterial sewage disposal and the renewing of certain sewers has been approved by the U.D.C. The sewage will flow by gravitation, no pumping being required. Messrs. H. Taylor & Wallin, civil engineers, Newcastle, have prepared the scheme, and the cost is estimated at £19,000.

DONCASTER.—The T.C. has decided to proceed with the purchase of land in the parish of Cantley, for £3,000, for the purposes of a new cemetery.

DUNDEE.—Plans passed: King's-road, additions to property, for Alexander Low; Kingsway, dwelling houses, for the Dundee Garden City Association, Ltd.; Long Wynd, alterations on property, for Dr. William Kinnear; Meadowside, offices for Messrs. Jute Industries, Ltd.; Old Glamis-road, dwelling houses, for H. T. Bowman; Perth-road, additions to nursing home, for the Fernbrae Nursing Home, Ltd.; Shaftesbury-road, garage for Gerald Melvin; Strathmartine-road, garage for Mrs. A. McPherson; Strathmartine-road, office for Messrs. George Will & Sons; Ward-road, alterations on Church for The Deacon's Court of Ward-road Baptist Church; Wellington-street, alterations to workshop, for A. F. Durkie, Junr.

EAST HAM.—Plans passed by B.C.:—Motor garage adjoining 8, Rectory-road, for Mr. F. G. Frost; garage buildings, Barking-road corner of Latimer-avenue, for Mr. E. G. Wilks; workshop and store for laundry, 109, Wakefield-street, for Mr. G. Hall; garage adjoining 513, Romford-road, for Mr. R. C. Turner Gordon; garage, Balmoral-road, 471, Romford-road, for Mr. R. C. Turner Gordon; hall, Lonsdale-avenue, for Mr. W. J. Cearns; alterations to 123, High-street North, for Mr. R. C. Turner Gordon; three houses, 190–194, Dersingham-avenue, for Mr. J. W. Cooper; motor garage and repair shop, Abbots-road, for The Arragon Engineering Co.

EDINBURGH.—At the last meeting of the Dean of Guild Court 35 petitions were considered. Of 14 full petitions warrant was granted in 8 cases, while 19 out of 21 applications in connection with minor alterations were remitted to the Burgh Engineer. Warrants were granted in connection with the following: Conversion of shops at 22–24, Newington-road, into a branch office of the Clydesdale Bank; erection of a telephone exchange and dwelling-house attached, for the Office of Works at Colinton; reconstruction of buildings at Newhaven-road, destroyed by fire, as a paper mill for Messrs. Inglis; reconstruction of premises at the corner of Princes-street and Frederick-street as a shop for Messrs. Manfield & Sons; completion of four bungalow dwellings at Hailes-gardens, Colinton; and the erection of new workshops for Mr. Henshaw, at Nurieston-crescent. Of the minor applications, the following were the most important: Extension of workshop at Annandale-street, for Mr. Gairn; internal alterations to Simpson House, 52, Queen-street; conversion of premises at Dean Park-mews into a confectionery factory; erection of small outbuildings at 20, Hermitage-drive; and the equipping of a building at Rodney-street, as a laundry.

EPSOM.—The local licensing justices have approved plans for the rebuilding of the famous "Amato Inn," which was recently destroyed by fire.

ETON.—Plans passed by R.D.C.: Bungalow in Staines-road, Wraysbury, for Mr. A. E Light; bungalow, at Hythe-end, Wraysbury, for Mr. E. Mackie; two cottages at Wexham-place, for Mr. E. H. Wilding; alterations and additions to Shirley Close, Hedgerley Green, for Miss Maud Stevenson; bungalow at Wraysbury, for Mr. M. P. Sawyer; bungalow in Bath-road, Burnham, for Miss E. Crouch; two bungalows in Langley-road, Wexham, for Mr. H. D. Bowyer; bungalow and garage at Wraysbury for Dr. Robert Riggall; house and shop in Bath-road, Burnham, for Mr. F. Smith; garage in Bath-road, Burnham, for Mr. William Wilson; bungalow, at Denham, for Messrs. Adams; alterations and additions to "Spicers," Iver Heath, for Mr. Montague Evans; two bungalows in Church-lane, Stoke Poges, for Mrs. Lisle Lees; bungalow at Langley, for Mr. W. Gregory; bungalow at Wraysbury, for Mr. H. Crocker; house in Britwell-road, Burnham, for Miss Ford; alterations and additions to "Broom Warren," Iver Heath, for Mr A. Valentin; house at Hitcham, for Mr. M. R. Edwards; bungalow at Farnham Royal, for Mr. W. Potts; bungalow at Langley, for Mr. C. L. Roach; house at Gerrards Cross, for Mr. R. Snare; house at Datchet, for Mr. H. H. Butterworth; house at Gerrards Cross, for Mr. H. C. Sweatman; bungalow at Farnham Common, for Mr. Squire; two cottages and garage at Farnham Royal, for Mr. B. B. Van Praagh; and three bungalows, at Wraysbury, for Messrs. Mead & Turner.

GLASGOW.—The following linings were granted at the last meeting of the Dean of Guild Court: Jordanhill U.F. Church, to erect a church hall in Woodend-road and Munro-road, Jordanhill; Corporation Gas Department, to erect an electric locomotive house at Provan Gasworks; Fairfield Engineering & Shipbuilding Co. (Ltd.), Govan, to erect a dressing shed and extend brass foundry at works, Govan-road; Clyde Valley Fuel Recovery Co., Ltd., Edinburgh, to erect a workshop at Springburn-road, near Carron-street; Glasgow High School Club, Ltd., to erect a grand stand on sports ground, Anniesland-road; R. M'Kinnon Dick, architect, 326, Pollokshaws-road, to erect cottage at Merrylea-road, Newlands; G. & J. Thomson, Ltd., 85, Colvend-street, Bridgeton, to erect a workshop at that address; Corporation Libraries Department, to erect a library in the Wellshot-road, at Tollcross Park.

GOUROCK.—The T.C. has decided to proceed with the erection of the new municipal buildings.

GRANGE.—Plans passed by U.D.C.: Lock-up shop in Kent Bank-road, for Mr. A. Nelson; detached bungalow in Cart-lane, for Mr. W. Burrow, Junr.

GREAT YARMOUTH.—Plans passed: Warehouse, on South Quay, for T. Small & Co., Ltd.; alterations to warehouse, North Quay, for Mr. B. Futter; four houses, Hamilton-road, for Mr. J. E. Dyson; cottage, St. Peter's Plain, for the Pure Ice Cream Co.; four houses, Hamilton-road, for Messrs. J. Balls & Sons; timber-built bungalow, Clarence-road, Southtown, for Mr. O. E. Gooch; six houses, Hamilton-road, for Messrs. Grimble & Son; four houses, Hamilton-road, for Mr. F. W. Lambert; one house, Balmoral avenue, for Miss Jerrard.

HAVERFORDWEST.—The joint meeting of recreation club representatives and the local Chamber of Trade has definitely decided on laying out a recreation ground for Haverfordwest.

HEAD'S NOOK.—A site for a village hall and reading room has been offered and a fund has been opened to meet the cost of erection.

KINGSBRIDGE.—The Ministry of Health has sanctioned the borrowing of £2,000 by the R.D.C. for fitting up the new cattle market site, and the inspector has been instructed to prepare plans.

KING'S LYNN.—Plan passed by T.C.:—Alterations, 27, Broad-street, for Mr. J. Barnaby; alterations, 29, New Conduit-street, for Mr. C. Cox; alterations to stores, St. James-street, for Messrs. Steward & Patteson; can-filling depot, Nar Bank, for the Anglo-American Oil Co.

LEEDS.—It is proposed by the Yorkshire Council for Agricultural Education to make a grant of £9,000 to the University towards the cost of new buildings.

LINTHWAITE.—Plans passed by U.D.C.:—Bungalow at Yew Tree-lane, for Mrs. C. V. Walker; bungalow at Cowlersley-lane, for Mrs. Lax; two houses at Causeway Side, for Messrs. Wrigley & Beaumont; internal alterations at the "Queen Inn," for Messrs. Bentley & Shaw, Ltd.; and garage at Coldwell-street, for Mr. W. W. Hanson.

LIVERPOOL.—The problem of the demolition and reconstruction of more slum property in Liverpool is engaging the consideration of the Housing Committee, thirteen streets, mainly in the North end of the city, having been earmarked for immediate attention. This is in addition to the eight areas marked down for treatment before the war, and work on which is still proceeding.

LONDON (BERMONDSEY).—Plans passed by T.C.:—Bank, 106, Bermondsey-street, Messrs. Courtney & Fairbairn, for the London Joint City and Midland Bank; two army huts, Tower Bridge-road, Mr. G. H. Hunt, for Messrs. S. H. & W. Hart; glue drying tunnel, Dunlop-place, for Messrs. B. Young & Co.; drainage, 24, Upper Russell-street, Messrs. H. Bacon & Son, for Messrs. Strong, Rawle & Strong.

LONDON (LAMBETH).—The B.C. has decided to erect a cleansing station in Monkton street, at a cost of £2,850.

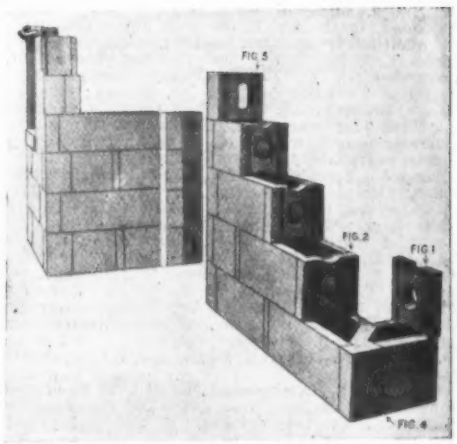
LONDON (STOKE NEWINGTON).—Drainage plans passed by B.C.:—T. Woolley & Son, at 48, 49, Victoria-road; H. Nelson, at 90, Fairholt-road; T. Simmons, at 92, Fairholt-road; F. Dod & Co., at 54, Woodberry Down; W. Few & Son, at 305, Green-lanes.

LOWESTOFT.—Plans passed by T.C.:—Boardley Bros., Ltd., stables, East-street; Mr. J. K. Algar, shop and workshop, St. Peter's-street; Mr. S. Burroughs, bungalow, Yarmouth-road, Oulton Broad; Mr. G. Kirton, washhouse, 44, Acton-road; Mr. J. Robinson, wooden offices and shop, Bridge-road; Mr. T. E. Garrood, residence, Acton-road; Mr. H. G. Oaten, alterations and additions to "Broadbank," Park Estate; Mr. J. F. Dodgson, iron shed, Hall-road, Oulton Broad; Mr. J. H. Smith, house, Yarmouth-road; Mr. E. W. Graveling, house, Park Estate, Oulton Broad; Mr. C. E. Turner, slaughterhouse, Walmer-road; Mr. A. E. Oakes, additions to workshop, Victoria-road; Mr. W. Church, store, rear of John-street.

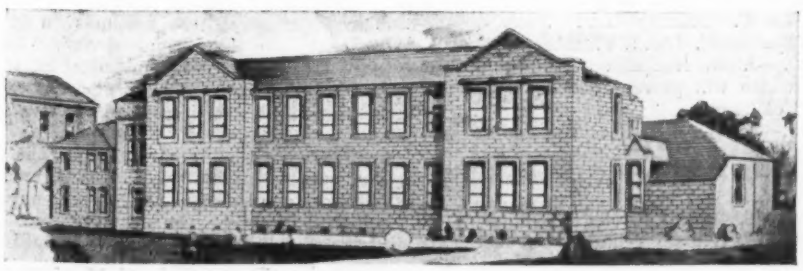
LYDD.—Plans passed by T.C.: Two houses, Station-road, for Mr. Wroughton.

MANSFIELD WOODHOUSE.—The U.D.C. has decided to offer a site to the Miners' Welfare Area Committee for the erection of baths and to maintain the baths when erected.

NORTHAMPTON.—Plans passed by T.C.: Dwelling house, The Avenue, Harlestone-road, for Mr. H. Lea; alterations and additions, Fanciers' Club; dwelling house, Lime-avenue, for Messrs. A. Glenn & Sons; oil stores and stables, Woolmonger-street, for Messrs. Johnson & Wright, Ltd.; shop and offices, Park-road,



"Wilkielock" Concrete Blocks. (*See p.* 966.)



Higher Grade School, Elmwood Convent, Bothwell. (*See p.* 966.)

* See also our List of Contracts, Competitions, etc.

for Messrs. Gandy & Co.; two dwelling houses, Park-road, for Messrs. E. Green & Son; alterations and additions to premises, Overstone-road, for United Trade Unionist Club; ten dwelling houses, St. Andrew's-road, for Messrs. Henry Martin, Ltd.; bungalow, Towcester-road, for Mr. Hanger; omnibus garage, Bedford-road, for United Counties Omnibus and Road Transport Co., Ltd.; addition to premises, Inkerman-terrace, for Mr. A. E. Catt; two dwelling houses, Garrick-road, for Mr. H. Samwell; alterations to shop, 53, Barrack-road, for Mr. S. Smith; dwelling house, Clarence-avenue, for Mr. W. F. Cornelius; additions to factory, Garfield-street, for Messrs. Jones Bros.; house and shop, Birchfield-road, for Messrs. A. Glenn & Sons; dwelling house, Weston-road, for Mr. T. P. Heggs; motor house, 9, The Drive, for Mr. A. E. Rodhouse; garage, Park-avenue, for Mr. J. E. Pawley; garage, 22, East Park Parade, for Mr. H. J. Payne; lock-up shop, Stanhope-road, for Mr. E. W. F. Hutchins; dwelling house, Weston-road, for Messrs. A. P. Hawtin & Sons, Ltd.; seed room, 10, Abington-square, for Northampton Co-operative Society, Ltd.

PONTYPRIDD.—A memorial chapel is to be erected in memory of the Rev. Evan Evans and Mrs. Evans at Pontypridd by the members of the Eglwysbach Church.

RHYMNEY.—The U.D.C. has decided to apply for Ministry sanction to a scheme for erecting a further 150 houses.

RYE.—Plans passed by T.C.: Bungalows at Camber, for Captain Munday and Mr. George Ellis; bungalows at Winchelsea for Mr. Willcard and Mr. Bryant; bungalow at Icklesham for Miss Belaney; Women's Institute at Northiam; and reconstruction of cottages at Northiam for Mr. J. Archer.

SEAHAM.—A lay-out plan of a site for houses behind James-street, submitted by Mr. J. W. Claxton, has been passed.

SEGHILL.—The U.D.C. is considering the question of providing 60 additional houses to meet the needs of the district.

SHEFFIELD.—Plans passed by T.C.:—Eight houses, Charlotte-road, for Sheffield Corporation Water Committee; bungalow, Myrtle Spring, for Mr. J. R. Banks; bungalow, School Green-lane, for Mr. W. F. Hides; house and garage additions, Ecclesall-road South and Croft-lane, for Mr. H. C. Sayer; house and garage, Sefton-road, for Messrs. J. Beresford & Sons; house and garage, Sefton-road, for Mr. L. Partridge; house, Fulwood-road, for Mr. J. W. Sivil; four houses, Blair Athol-road, for Mr. M. Simpson; two houses, Ecclesall-road South, for Mrs. Kennedy; seven houses, Whirlow-dale-road, for Mr. J. W. Ardern; hotel, Sheffield-road, and St. Lawrence-road, Tinsley, for Messrs. Tennant Bros., Ltd.; house and alterations, Bank House-road, for Mr. W. Coleman; six houses, Havercroft and Firbeck-roads, for Mr. E. Sivil; house, Trap-lane, Latham-square, for Mr. H. Hancock; house and cycle house, Manchester-road, for Mr. H. A. Stone; house, shop, and store, Catcliffe-road, for Mr. Ezra Wainwright; bungalow, Cavill-road, for Mr. F. E. Jackson; house, Huntsman-road, for Messrs. W. & E. Sadler.

SWANAGE.—The U.D.C. has passed plans for bungalows in Priests-road, for Mr. C. Turner and Mr. F. Selby.

TRURO.—Plan passed by T.C.: Alterations to house, Moresk-road, for Mr. W. Dyer.

ULVERSTON.—Plans passed by U.D.C.:—House at Sandside, Kirkby, for Mr. D. Hulme; bungalow, for Mr. A. Maynard, of the Heald, Monk Coniston; and slaughter-house at Headhouse, Cartmel, for Mr. Machell.

WAKEFIELD.—Plans passed by T.C.: Mr. W. H. Ogden, cowshed to Park View Farm in Horbury-road, for Mr. W. Sturdy; Mr. H. Dobson, two houses and house and shop at Westgate End and Chald-lane, for Mr. W. S. Akeroyd; Mr. W. H. Ogden, additions to shop and garage in Warrengate, for Mr. W. H. King; Mr. W. H. Ogden, garage in Vicarage-street, for Mr. A. H. Everson; Messrs. Newbald & Hartley, two lock-up garages in Strafford-square, for Messrs. Kilkenny Bros.; Messrs. Bell & Kay, four houses in Agbrigg-road and Altinkool-street, for Messrs. Ellis & Robinson; Mr. J. R. Lister, additions to Sugar Boiling Works in Elder-grove, for Messrs. N. H. Charlesworth & Co., Ltd.; Mr. W. T. Turner, house in Chevet-lane, for Mr. G. E. Tansley.

WICKERSLEY.—A Ministry of Health inquiry has been held by Mr. M. G. Weekes, into an application by the R.D.C. for sanction to borrow the sum of £14,249 for sewerage and sewage disposal in the parishes of Dalton and Wickersley.

FIRES.

ARMADALE.—A fire has occurred in a two-story building in the main street occupied by the Co-operative Store.

BLAENAVON.—Damage estimated at £5,000 was caused by a fire at the ironmongery and furniture store of the Blaenavon Provident and Industrial Society in High-street, Blaenavon, on Saturday night.

Health Week.

Under the auspices of the Royal Sanitary Institute, "Health Week" this year will be held from October 8 to 14. Efforts will be made to focus public attention on matters of health, which depends as much on individuals as on their surroundings. Notwithstanding the achievements of sanitary science during recent years, much still remains to be done before the health of the people can be regarded as even approximately satisfactory, and it is proposed that the dominant idea for 1922 should be "Self Help in Health," and the consideration of what each individual can do for himself and his neighbour in securing a healthy life.

PATENTS.

*APPLICATIONS PUBLISHED.

153,599.—E. Lechat: Apparatus for the manufacture of bricks or building-blocks provided with a facing.

153,900.—J. Faure-Dujarric: Locks.

154,205.—R. A. Tison: Moulded pipes, hollow pillars, &c.

154,903.—L. Faure-Dujarric: Building-blocks.

156,505.—C. M. Crozet: Door checks and closing springs.

157,137.—Smith Engineering Works: Crushers.

157,432.—R. Hofler and S. Renyi: Building-element suitable for use as a wood substitute.

159,856.—Soc. Bonnet Aine et Ses Fils: Machines for moulding concrete and like blocks.

159,864: H. H. Robertson Co.: Protected metal sheet for use in buildings.

163,667.—E. Gresly: Glazing roofs and terraces.

165,772.—International Casement Co., Inc.: Window hinges.

174,652.—W. J. Hollick: Fastenings for doors.

174,665.—E. Airey: Construction of internal walls of buildings.

174,668.—T. K. Webster and W. E. John: Roofing and walling material.

174,729.—T. G. Davidson: Means for building walls of concrete or other material.

174,740.—T. A. Brown and C. Walker: Manufacture of concrete and like blocks and objects.

174,748.—T. C. Brown and C. Walker: Machines or apparatus for moulding and pressing of concrete and like blocks or objects.

174,749.—T. A. Brown and C. Walker: Building-blocks and the erection of building construction therewith.

174,774.—J. A. O. Balda: Radiators for heating buildings.

174,792.—M. Galke and Deutsche Leicht-Beton-Massivbau-Industrie Ges.: Reinforced concrete structures.

174,806.—R. J. Rogers: Ventilators or guarded outlets for air shafts, gas flues, and like purposes.

175,127.—G. G. Luckett: Means for securing bolts in stone and other materials.

175,128.—H. C. Badder, S. F. Burrows, and H. L. F. Allender: Moulds for building concrete or like walls.

175,136.—E. R. Lancaster: Doors, gates, shutters, &c.

175,157.—R. Brown and H. B. Slater: Construction of ladders.

175,179.—G. H. Stonehouse: Mould for making concrete bricks.

175,219.—G. Norman: Concrete buildings.

175,321.—R. E. Hanney: Combined extension ladder and scaffold support.

150,965.—C. J. M. Lancette: Reinforced concrete buildings and other works.

175,335.—W. Pearson: Concrete building bricks or blocks.

175,349.—A. Middleton: Sliding doors.

175,358.—Simplex Conduits, Ltd. and H. F. McLoughlin: Continuity devices for metallic conduits and fittings for electric cables.

175,380.—O. F. Fischer: Concrete buildings.

175,425.—W. Green and J. H. Dean: Manufacture of concrete slabs.

175,441.—V. S. Lundell and G. E. Eckberg: Casement windows and hinges.

175,474.—W. Murray and Saunders & Connor (Barrhead), Ltd.: Flushing apparatus.

175,500.—J. M. Birdsall: Chimney pot or the like which will prevent the down blast of smoke in chimneys.

175,675.—H. R. Rignold: Adjustable supporting-means for shelf brackets.

175,696.—C. Kelly and T. Beevers-Belboir: Concrete blocks.

175,707.—T. Griffin: Bolts.

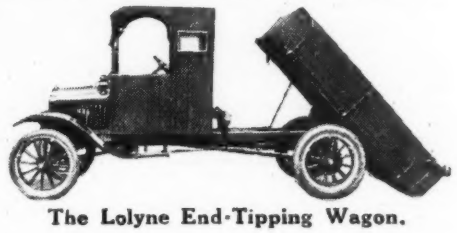
175,762.—F. Wilde: Window sash fasteners.

*All these applications are now in the stage in which opposition to the grant of Patents upon them may be made.

TRADE NEWS.

Messrs. J. H. Sankey & Son, Ltd., Canning Town, E.16, request us to state, with reference to the fire which occurred at their Ilford branch last week, that although considerable damage was done to a large shed and an amount of stock, fortunately the offices and the most important buildings, plant and stock were uninjured and business will in no way be disturbed.

Messrs. F. Walters & Co., engineers, Albert-street, Rugby, are making a speciality of motor wagons for the use of builders. The Lolyne end-tipping wagon (Model D), which is 8 ft. by 5 ft. by 1 ft. 6 in., is constructed with detachable sides, for the conveyance of builders' materials, or slatted for live stock, market garden produce, &c. It is tipped by gravity to 53 deg., and it is fitted with strong spring shock absorber. The



The Lolyne End-Tipping Wagon.

frame is of rigid angle steel, and the vehicle is built of well-seasoned timber, with tail-board hinged at top and detachable. There are steel side brackets for the conveyance of ladders, poles, &c., and the sides can be detached by one man in a few seconds, making the vehicle into a platform truck. The two-seater driver's cab is of steel and timber construction, with door windows back and sides, adjustable glass windscreen, and head and rear light brackets.

The Brimsdown Sand & Ballast Co., Ltd., of Ponder's End, Middlesex, announce that their works have been completed, and that orders can now be executed. This Company was formed over a year ago, but we understand the management were so anxious to place on the market sand and ballast of only good and clean quality that they refrained from attempting to make any sales until they could turn out such products. "Brimsdown River" Ballast is not new to the trade, as Messrs. Mossops supplied this from their pits over a period of nearly 30 years. When their pits were worked out the Brimsdown Sand & Ballast Co. acquired the 50 acres of land adjoining and started to build modern plant to treat the aggregate. Railway sidings connect with the main London–Hertford line of the G.E. Rly., and the River Lea forms one of the boundaries of the property—added to which roads have been laid direct to the treating plant, so that all means are available for cheap transport. As these works are only 10 miles from Liverpool-street Station the Company hope to do a good trade in and around the Metropolis. We are informed that the Company's products are suitable for ferro-concrete work, being sharp and free from clay, salt, and shells, with all the good characteristics of "river" ballast. Contractors are invited to apply for samples, and applications should be addressed to the Company's works at Ponder's End.

"Safety First."

Universally there is evidence of a marked increase of protective methods in industrial concerns, and the revival of *Safety First*, the journal of the British Industrial Safety First Association, in a new form, points to the opening of a new phase in the development and broadcasting of those principles which are of so much importance to the nation. The paper contains useful articles, which are the considered opinions of those who have gained practical experience in means of accident-prevention, and who have been responsible for the setting up and effective application of "Safety First" organisation in the great industrial undertakings with which they are associated.

PRICES CURRENT OF MATERIALS.*

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry. Since our last issue several prices have been revised.—Ed.]

BRICKS, &c.

Per 1,000 Alongside, in River Thames up to London Bridge.

	£ s. d.
Best Stocks	4 2 0

Per 1000, Delivered at London Goods Stations.

	£ s. d.		£ s. d.
Flettons, at King's Cross	3 1 0	Best Blue Pressed Staffs.	10 1 6
Do. grooved for plaster	3 3 0	Do. Bullnose	10 11 6
Do. Bullnose	3 16 0	Blue Wire Cuts	8 1 6
Best Stourbridge Fire bricks:—			
2½ in.	11 3 0	3 in.	13 2 0
GLAZED BRICKS—			
Best White, Ivory, and Salt Glazed Stretchers	24 0 0	D'ble Str'tch'rs	32 10 0
		D'ble Headers	29 10 0
		One Side and one Ends	33 10 0
Headers	23 10 0	Two Sides and one End	34 10 0
Quoins, Bullnose and 4½in. Flats	30 10 0	Splays and Squints	32 0 0

Second Quality, £1 per 1,000 less than best. Cream and buff, £2 extra over white. Other colours, Hard Glaze, £5 10s. extra over white.

	s. d.		
Thames Ballast	14 0	per yard,	delivered 2 miles radius Paddington.
Pit Sand	17 0	„ „	
Thames Sand	19 0	„ „	
Best Washed Sand	19 0	„ „	
½ in. Shingle for Ferro-Concrete	19 0	„ „	
¼ in. „ „	20 0	„ „	

Per ton delivered in London area in full van loads.

	£ s. d.		£ s. d.
Best Portland Cement. British Standard Specification Test	3 10 6		3 16 0

63/6 alongside at Vauxhall in 80-ton lots.

Ferrocrete per ton extra on above 10 0

NOTE.—The sacks are charged at 1s. 9d. each and credited at 1s. 6d. each if returned in good condition within three months, carriage paid.

Best Ground Blue Lias Lime 2 8 0 at rly. depot.
Grey Stone Lime 61s. 0d. per ton delivered in City and Central districts.
Stourbridge Fireclay in s'cks 37s. 8d. per ton at rly. dpt.

STONE.

	s. d.
BATH STONE—delivered in railway trucks at Westbourne Park, Paddington, G.W.R., or South Lambeth, G.W.R., per ft. cube	3 1
Do. do. delivered in railway trucks at Nine Elms, L. & S.W.R., per ft. cube	3 5½
Do. do. delivered on road wagons at Nine Elms Depot	3 6½
PORTLAND STONE—	
Brown Whitbed, in random blocks of 20 ft. average, delivered in railway trucks at Nine Elms, L. & S.W.R., South Lambeth Station, G.W.R., and Westbourne Park, Paddington, G.W.R., per ft. cube	4 7
Do. do. delivered on road wagons at above stations, per ft. cube	4 8
White basebed, 3d. per ft. cube extra.	
NOTE.—½d. ft. cube extra for every foot over 20 ft. *average*, and ½d. beyond 30 ft.	
YORK STONE, BLUE—*Robin Hood Quality.*	
Delivered at any Goods Station London.	s. d.
6 in. sawn two sides landings to sizes (under 30 ft. super.) Per Ft. Super	5 10½
6 in. rubbed two sides, ditto „	6 4½
3 in. sawn two sides slabs (random sizes) „	2 5½
2 in. to 2½ in. sawn one side slabs (random sizes) „	1 6½
1½ in. to 2 in. ditto, ditto „	1 4
HARD YORK—	
Delivered at any Goods Station London.	
Scappled random blocks Per Ft. Cube	6 0
6 in. sawn two sides landing to sizes (under 40ft. super.) Per Ft. Super	5 4½
6 in. rubbed two sides ditto „	6 0½
4 in. sawn two sides slabs (random sizes) „	2 10
3 in. ditto, ditto „	2 5½
2 in. self-faced random flags Per Yard Super	8 4

WOOD.

GOOD BUILDING DEAL.

Inches	£ s.	
4 × 11	36 0	per standard
4 × 9	36 0	„
4 × 8	30 0	„
4 × 7	30 0	„
3 × 8	30 0	„
3 × 7	25 0	„
2½ × 7	22 10	„
3 × 6	22 10	„
3 × 11	35 0	„
2 × 11	35 0	„
3 × 9	35 0	„
2½ × 9	30 0	„
3 × 4½	20 10	„
3 × 4	20 10	„

PLANED BOARDS.

1 × 11	42 10	„
1 × 9	37 10	„

PLAIN EDGE FLOORING.

Inches		
¾	20/-	per square
¾	22/6	„
1	25/-	„
1¼	32/6	„
1½	44/-	„

TONGUED AND GROOVED FLOORING.

Inches		
1	25/-	per square
1¼	32/6	„
1½	44/-	„

WOOD (*Continued*).

MATCHINGS (BEST).

Inches		
¾	17/6	per square
¼	22/6	„
1	25/-	„

Inches	BATTENS.	s. d.	
¾ × 2		3 0	per 100 ft.

SAWN LATHS.

Per bundle				0	4 0
Dry Wainscot Oak, per ft. super, as inch	0	2 6	to	0	3 0
¼ in. do. do.	0	1 10½	to	0	2 6
Dry Mahogany—Honduras, Tabasco, African, per ft. super, as inch	0	2 3	to	0	3 0
Cuba Mahogany	0	3 6	to	0	4 0
Teak (Rangoon, Moulmein or Java), per load	52	10 0	to	55	0 0
American Whitewood planks, per ft. cube	0	16 0	to	0	18 0
Best Scotch Glue, per cwt.	7	2 0	to	—	
Liquid Glue, per cwt.	4	18 0	to	6	0 0

SLATES.

1st quality slates from Bangor or Portmadoc in truck load delivered London area. Per 1,000 of 1,200.

	£ s. d.		£ s. d.
24 by 12	46 10 0	18 by 10	26 5 0
22 by 12	42 5 0	18 by 9	23 2 6
22 by 11	39 0 0	16 by 10	22 0 0
20 by 12	37 2 6	16 by 8	17 2 6
20 by 10	31 15 0		

TILES.

	Per 1,000 f.o.r. London. £ s. d.
Best machine-made tiles from Broseley or Staffordshire district	6 0 0
Ditto hand-made ditto	6 10 0
Ornamental ditto	6 15 0
Hip and valley tiles (per dozen) { Hand made	0 8 6
Hip and valley tiles (per dozen) { Machine made	0 8 0

METALS.

JOISTS, GIRDERS, &c., TO LONDON STATION PER TON—

	£ s. d.
R. S. Joists, cut and fitted	14 10 0
Plain Compound Girders	16 10 0
Stanchions „	18 0 0
In Roof Work „	22 0 0

WROUGHT IRON TUBES AND FITTINGS—

(Discount off List for lot of not less than £15 net value delivered direct from Works. 5 per cent. less above gross discounts, carriage forward if sent from London Stocks.)

Tubes. (all sizes).	Fittings. Up to 2".	Fittings. Over 2".	Flanges. Up to 2".	Flanges. Over 2"
Gas	55 %	55 %	60 %	65 %
Water	50 %	50 %	55 %	60 %
Steam	45 %	45 %	50 %	55 %
Galv'd—				
Gas	45 %	47½ %	52½ %	57½ %
Water	37½ %	42½ %	47½ %	52½ %
Steam	27½ %	37½ %	42½ %	47½ %

L.C.C. COATED SOIL PIPES—London Prices ex works.

	Pipe. s. d.	Bends, stock angles. s. d.	Branches, stock angles. s. d.
2 in. per yd. in 6fts plain	3 7½	3 0	3 7
2½ in. „	4 4	3 3	4 6
3 in. „	5 1½	3 7	5 5
3½ in. „	5 7½	4 6	6 4
4 in. „	6 4½	5 1	7 3

RAIN-WATER PIPES, &c.

	Pipe. s. d.	Bends, stock angles. s. d.	Branches, stock angles. s. d.
2 in. per yd. in 6fts. plain	2 1	1 7½	2 2½
2½ in. „ „	2 3½	1 10½	2 7½
3 in. „ „	2 9	2 4	3 6
3½ in. „ „	3 3	2 9½	4 1
4 in. „ „	3 8	3 4½	4 11½

L.C.C. DRAIN PIPES.—9 ft. lengths. London Prices per yd.: 4 in., 5/11. .. 5 in., 7/-. .. 6 in., 8/6.

	Per ton in London. £ s. d.		£ s. d.
IRON—			
Common Bars	13 0 0	to	14 0 0
Staffordshire Crown Bars — good merchant quality	14 0 0	..	15 0 0
Staffordshire "Marked Bars"	16 0 0	..	17 0 0
Mild Steel Bars	12 0 0	..	13 0 0
Steel Bars, Ferro-Concrete quality, basis price	12 0 0	..	13 0 0
Hoop Iron, basis price	15 0 0	..	16 0 0
„ Galvanised	29 0 0	..	31 0 0
Soft Steel Sheets, Black—			
Ordinary sizes to 20 g.	14 0 0	..	15 0 0
„ „ „ 24 g.	15 0 0	..	16 0 0
„ „ „ 26 g.	16 10 0	..	18 10 0
Sheets Flat Best Soft Steel, C.R. & C.A. quality—			
Ordinary sizes, 6ft. by 2ft. to 3ft. to 20 g.	21 0 0	..	22 0 0
Ordinary sizes, 6ft. by 2ft. to 3ft. to 22 g. and 24 g.	22 0 0	..	23 0 0
Ordinary sizes, 6ft. by 2ft. to 3ft. to 26 g.	24 0 0	..	26 0 0
Flat and Galvanised Corrugated Sheets—			
Ordinary sizes, 6 ft. to 9ft. 20 g.	20 0 0	..	21 0 0
Ordinary sizes, 6ft. to 9ft. 22 g. and 24 g.	20 10 0	..	21 10 0
Ordinary sizes, 6ft. to 9ft. 26 g.	22 10 0	..	23 10 0

METALS (*Continued*).

	Per ton in London. £ s. d.		£ s. d.
Sheets Galvanised Flat, Best quality—			
Best Soft Steel Sheets, 6ft. by 2ft. to 3ft. to 20g. and thicker	24 0 0	..	25 0 0
Best Soft Steel Sheets, 22 g. and 24 g.	25 0 0	..	26 0 0
Best Soft Steel Sheets, 26 g.	26 10 0	..	27 10 0
Cut Nails, 3in. to 6in.	23 0 0	..	24 0 0
(under 3in. usual trade extras.)			

METAL WINDOWS—Standard sizes suitable for complete houses, including all fittings, painting two coats, and delivery to job, average price about 1/7 to 1/10 per foot super.

LEAD, &c.

	Delivered in London. £ s. d.		
LEAD—Sheet, English, 4 lb. and up	36 0 0	..	—
Pipe in coils	36 10 0	..	—
Soil Pipe	39 0 0	..	—
Compo pipe	40 0 0	..	—

NOTE—Country delivery, 30s. per ton extra; lots under 5 cwt., 1s. 6d. per cwt. extra. Cut to sizes, 2s. cwt. extra.

Old lead, ex London area, at Mills per ton	22 0 0	..	—
Do., ex country, carriage forward per ton	23 0 0	..	—
COPPER—			
Strong Sheet per lb.	0 2 8	..	—
Thin „ „	0 2 4	..	—
Copper nails „	0 2 5	..	—
Copper wire „	0 2 4	..	—
TIN—English Ingots „	0 1 9	..	—
SOLDER—Plumbers' „	0 0 10	..	—
Tinmen's „	0 1 0	..	—
Blowpipe „	0 1 3	..	—

GLASS.

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES AND IN SQUARES IN ORDINARY SIZES.

	Per Ft.		Per Ft.
15 oz. fourths	3½d.	32 oz. fourths	8½d.
„ thirds	4½d.	„ thirds	10d.
21 „ fourths	5½d.	Obscured Sheet, 15 oz.	4½d.
„ thirds	6d.	„ 21 „	7d.
26 „ fourths	6½d.	Fluted and Enamelled 15 „	8½d.
„ thirds	7½d.	„ 21 „	10½d.

Extra price according to size and substance for squares cut from stock.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.

	Per Ft.
¼ Rolled plate	4½d.
⅛ Rough rolled	6d.
¼ Rough rolled	6½d.
Figured Rolled, Oxford Rolled, Baltic, Oceanic, Arctic, Stippolyte, and small and large Flemish white	7d.
Ditto, tinted	9½d.
Rolled Sheet	6d.
White Rolled Cathedral	5½d.
Tinted do.	7½d.

Cast Plate is same price as rough rolled.

PAINTS, &c.

		£ s. d.
Raw Linseed Oil in pipes per gallon		0 4 3
„ „ „ in barrels „		0 4 4
„ „ „ in drums „		0 4 6
Boiled „ „ in barrels „		0 4 8
„ „ in drums „		0 4 10
Turpentine in barrels „		0 7 0
„ in drums (10 gall.) „		0 7 3
Genuine Ground English White Lead, per ton (in not less than 5 cwt. casks.)		54 15 0
GENUINE WHITE LEAD PAINT— "Father Thames," "Nine Elms," "Park," "Supremus" and other best brands (in 14 lb. tins) not less than 5 cwt. lots per ton delivered		75 5 0
Red Lead, Dry (packages extra) per ton		38 0 0
Best Linseed Oil Putty per cwt.		0 17 0
Filocol per cwt.		0 15 6
Size. X D Quality fkn.		0 4 6

VARNISHES, &c.

		Per gallon. £ s. d.
Oak Varnish	Outside	0 14 0
Fine ditto	ditto	0 16 0
Fine Copal	ditto	0 18 0
Pale Copal	ditto	1 0 0
Pale Copal Carriage	ditto	1 4 0
Best ditto	ditto	1 12 0
Floor Varnish	Inside	0 18 0
Fine Pale Paper	ditto	0 18 0
Fine Copal Cabinet	ditto	1 2 0
Fine Copal flatting	ditto	1 0 0
Hard drying Oak	ditto	0 18 0
Fine Hard drying Oak	ditto	0 19 0
Fine Copal Varnish	ditto	1 0 0
Pale ditto	ditto	1 2 0
Best ditto	ditto	1 12 0
Best Japan Gold Size		0 12 0
Best Black Japan		0 14 0
Oak and Mahogany Stain (water)		0 12 0
Brunswick Black		0 9 0
Berlin Black		0 14 0
Knotting (patent)		1 5 0
French and Brush Polish		1 2 6
Liquid Dryers in Terebine		0 12 0
Cuirass Black Enamel		0 7 0

* The information given on this page has been specially compiled for THE BUILDER and is copyright. Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

CURRENT PRICES FOR BUILDING WORK IN LONDON.*

EXCAVATOR.

		s.	d.
Digging and throwing or wheeling and filling carts, and carting away to shoot—6 ft. deep	per yard cube	15	0
Add if in clay	" "	1	6
Add for every additional depth of 6 ft.	" "	0	9
Planking and strutting to trenches	per foot super	0	7
Do. to sides of excavation, including shoring	" "	1	2

CONCRETOR.

		s.	d.
Portland cement concrete in foundation 1 to 6	per yard cube	40	0
Add if in underpinning in short lengths	" "	9	0
Add if in floors 6 in. thick	" "	3	9
Add if in beams	" "	4	6
Add if aggregate 1 : 2 : 4	" "	11	0
Add for hoisting not exceeding 10 ft. beyond the first 10 ft.	" "	3	6

BRICKLAYER.

		£	s.	d.
Reduced brickwork in lime mortar and Fletton bricks	per rod	36	0	0
Add if in stocks	"	8	10	0
Add if in Staffordshire blues	"	25	10	0
Add if in Portland cement and sand	"	3	10	0

FACINGS.

Extra for facing in English or Flemish bond for every 10s. per 1,000 over the price of the common bricks	per ft. super	0	0	1½

POINTING.

Neat flat strucks or weathered joint	" "	0	0	3

ARCHES.

Extra only to the price of ordinary brickwork :—				
Fair external in half brick rings	" "	0	0	10
Axed in stocks	" "	0	1	9
Rubbed and gauged jointed in putty camber or segmental	" "	0	6	0

SUNDRIES.

Damp course in double course of slates breaking joint and bedded in Portland cement	" "	0	1	3
Setting ordinary register grates and stoves	each	1	1	0
Setting kitchener, including forming flues, &c., with all necessary fire bricks	"	5	5	0

ASPHALTER.

		s.	d.
Half-inch horizontal damp course	per yard sup.	7	6
Three-quarter-inch vertical damp course	" "	11	0
¾ inch on flats in two thicknesses	" "	8	6
Angle fillet	per foot run	0	3
Skirting and fillet 6 in. high	" "	1	4

MASON.

York stone templates fixed	per foot cube	16	3
York stone sills fixed	" "	28	6
Bath stone and all labour fixed	" "	15	0
Portland stone fixed	" "	22	0

SLATER.

Welsh 16 in. × 8 in. 3 in. lap, including nails	per square	79	9
Do. 20 in. × 10 in. Do. Do.	"	90	9
Do. 24 in. × 12 in. Do. Do.	"	99	0

CARPENTER AND JOINER.

Fir framed in plates	per foot cube	5	9
Do. joists	" "	6	9
Do. roofs, floors and partitions	" "	6	9
Do. trusses	" "	8	6

		¾"	1"	1¼"	2"
Deal rough close boarding	per sq.	42/-	48/-	55/-	85/-

Flat centering for concrete floor, including struts or hangers	"	60	0
Do. to beams	per ft. sup.	1	6
Centres for arches	"	2	0
Gutter boards and bearers	"	1	3

FLOORING.

		¾"	1"	1¼"	1½"
Deal-edges shot	per sq.		49/-	58/-	67/-
Do. tongued and grooved	"		54/-	65/-	72/-
Do. matchings	"	45/-	55/-		
Moulded skirting, including backings and grounds	per ft. sup.	1/8	2/1	2/3	2/9

SASHES AND FRAMES.

		s.	d.
One-and-a-half moulded sashes or casements	per foot super	1	10
Two Do. Do. Do.	" "	2	3
Add for fitting and fixing	" "	0	6
Deal-cased frames with 1 in. inner and outer linings, 1½ in. pulley stiles tongued to linings, hard wood sills with 2 in. moulded sashes in squares double hung, double hung with pulleys, lines and weights; average size	" "	4	1

DOORS.

		1½"	1¾"	2"
Two-panel square framed	per ft. sup.	2/4	2/7	2/9
Four-panel Do.	"	2/8	3/0	3/3
Two-panel moulded both sides	"	3/0	3/3	3/6
Four-panel Do. Do.	"	3/3	3/7	3/10

CARPENTER AND JOINER—continued.

FRAMES.

		s.	d.
Deal wrot moulded and rebated	per foot cube	14	6

		1"	1¼"	1½"
Plain deal jamb linings framed	per ft. sup.	1/9	1/10	2/1
Deal shelves and bearers	"	1/6	1/8	1/11
Add if cross tongued	"	2d.	2d.	2d.

STAIRCASES.

	1"	1¼"	1½"	2"	2½"
Deal treads and risers in and including rough brackets	2/1	2/4	2/9	—	—
Deal strings wrot on both sides and framed	1/8	2/-	2/2	2/8	—

		s.	d.
Housings for steps and risers	each	0	11
Deal balusters, 1 in. × 1¼ in.	per ft. run.	0	9
Mahogany handrail; average 3 in. × 3 in.	" "	6	0
Add if ramped	" "	11	10
Add if wreathed	" "	23	9

FIXING ONLY IRONMONGERY (INCLUDING SCREWS).

6 in. barrel bolts	8½d.	Rim locks	2/4
Sash fasteners	11½d.	Mortice locks	5/3
Casement fasteners	1/5	Patent spring hinges and letting in to floor and making good	19/-
Casement stays	1/2		
Cupboard locks	1/5		

FOUNDER AND SMITH.

		s.	d.
Rolled steel joists	per cwt.	19	0
Plain compound girders	"	22	0
Do. stanchions	"	25	0
In roof work	"	30	0

RAIN-WATER GOODS.

		3"	4"	5"	6"
Half-round plain rebated joints	ft. run	1/11	2/4½	3/7	4/-
Ogee Do. Do.	"	2/4½	3/1	3/10	4/9
Rain-water pipes with ears	"	2/9	3/7		
Extra for shoes and bends	each	4/4	5/11		
Do. stopped ends	"	1/11	2/4½	3/7	4/-
Do. nozzles for inlets	"	2/2	2/7	3/10	4/3

PLUMBER.

		s.	d.
Milled lead and laying in flashings and gutters	per cwt.	56	0
Do. Do. in flats	"	52	0
Extra labour and solder in coated cesspools	each	7	4
Welt joint	per ft. run.	0	6
Soldered seam	" "	1	10
Copper nailing	" "	0	7

		½"	¾"	1"	1½"	2"	4"
Drawn lead waste	per ft. run	10d.	1/6	1/9	3/1	3/10	
Do. service	"	1/5	1/11	2/3	3/6		6/2
Do. soil	"					3/3	8/2
Bends in lead pipe	each	1/2	1/8	2/1	2/10	3/6	
Soldered stop ends	"	11d.	1/-	1/3	1/11	2/4	4/10
Red lead joints	"	2/10	3/6	4/-	4/11	6/6	9/9
Wiped soldered joints	"				14/7	19/6	
Lead traps and cleaning screws	"	6/4	9/7	15/4	41/-		
Bib cocks and joints	"	15/4	17/2	25/8	64/-		
Stop cocks and joints	"						

PLASTERER.

			s.	d.
Render, float and set in	lime and hair	per yard sup.	3	0
Do. Do.	Sirapite	" "	3	2
Do. Do.	Keen's	" "	4	4
Add sawn lathing		" "	1	7
Add metal lathing		" "	2	10
Portland cement screed		" "	2	9
Do. plain face		" "	4	4
Mouldings in plaster		per 1 girth	0	3
One-and-a-half granolithic pavings		per yard sup.	6	4

GLAZIER.

21 oz. sheet plain	per foot sup.	1	1
26 oz. Do.	" "	1	4
Obscured sheet	" "	1	8
⅛ in. rolled plate	" "	1	0
¼ in. rough rolled or cast plate	" "	1	1
¼ in. wired cast plate	" "	1	7

PAINTER.

		s.	d.
Preparing and distempering, 2 coats	per yard sup.	1	0
Knotting and priming	" "	0	8
Plain painting 1 coat	" "	0	11
Do. 2 coats	" "	1	7
Do. 3 coats	" "	2	4
Do. 4 coats	" "	3	0
Graining	" "	2	5
Varnishing twice	" "	1	11
Sizing	" "	0	4
Flatting	" "	0	8
Enamel	" "	1	3
Wax polishing	per foot sup.	0	9
French polishing	" "	1	3
Preparing for and hanging paper	per piece	2/- to 4/-	

* These prices apply to *new buildings only*. They cover superintendence by foreman and carry a profit of 10% on the prime cost without establishment charges. A percentage of 1½ should be added for Employers' Liability and National Health and Unemployment Acts and from 1s. 6d. per £100 for Fire Insurance. The whole of the information given on this page is copyright.

NEW COMPANIES.

THE particulars quoted below have been compiled by Messrs. Jordan & Sons, Ltd., Company Registration Agents, of 116 & 117, Chancery-lane, W.C.2, from the documents available at the Companies' Registry.

MILRIGHT & Co., LTD. (180,297). Registered March 13. 43, Gower Street, W.C. 1. Marble merchants. Nominal capital, £10,000.

LEWIS & PRITCHARD, LTD. (180,294). Registered March 13. St. Andrews Quarry, Dinas Powis, Glamorgan. Quarry merchants, stone merchants, and public works contractors. Nominal capital, £3,500.

LLANBERIS GRANITE CO., LTD. (180,295). Registered March 13. Nominal capital, £100.

C. WILLIAMSON, LTD. (180,324.) Registered March 14. Canal Street Wharf, Nottingham. Builders and contractors. Nominal capital, £2,000.

STEPNEY BUILDERS' SUPPLIES, LTD. (180,319). Registered March 14. 232a, Oxford street, Mile End, E. Nominal capital, £1,000.

CARTER CONSTRUCTION CO., LTD. (180,366). Registered March 16. Manufacturers, dealers, and workers in cement, lime, plasters, &c. Nominal capital, £2,000.

ARTHUR E. JESSON, LTD. (180,379). Registered March 17. 135, Northcote-road, Clapham Junction, S.W. Builders' and decorators' merchants. Nominal capital, £1,000.

WALKER & SLATER, LTD. (180,405). Registered March 17. Builders and contractors. Nominal capital, £25,000.

WILLIAM BASNETT, LTD. (180,426). Registered March 18. Plate and sheet glass merchants, oil and paint merchants, plumbers' material merchants, &c. Nominal capital, £5,000.

RODGERS & BARON, LTD. (180,418). Registered March 18. Lawson-road, Thornton-le-Fylde, Lancaster. Builders' merchants, coal and coke merchants, &c. Nominal capital, £3,000.

MILLER & SONS (WISBECH), LTD. (180,153). Registered March 7. Builders' merchants. Nominal capital, £5,000.

MARKET LAVINGTON BRICK AND TILE WORKS, LTD. (180,152). 20, Estcourt-street, Devizes, Wilts. Registered March 7. Nominal capital, £4,000.

THOMSON & DIXON (DONCASTER), LTD. (180,188). Registered March 8. Prudential Chambers, Silver-street, Doncaster, York. Building and engineering contractors. Nominal capital, £8,000.

BILLERICAY BRICK CO., LTD. (180,196). Registered March 9. The Brickfield, Charity Farm, Billericay, Essex. Nominal capital, £2,000.

A. CAESAR & SONS, LTD. (180,223). Registered March 10. Queen-street, Liphook. Builders and contractors. Nominal capital, £10,000.

BRIDGE MAHOGANY AND TIMBER CO., LTD. (180,228). Registered March 10. 18, Cook-street, Liverpool. Nominal capital, £2,000.

COOPER UPTON, LTD. (180,261). Registered March 11. 6, Fen Court, Fenchurch-street, E.C. 3. Builders. Nominal capital, £1,000.

HOLBROOK BRICK & TILE CO., LTD. (180,442). Registered March 20. 64, Victoria-street, Westminster, S.W. 1. Nominal capital, £6,000.

DUDLEY TIMBER & SAW MILLS, LTD. (180,436). Registered March 20. 53, North-street, Dudley. Nominal capital, £3,000.

WALTER DYER, LTD. (180,454). Registered March 20. Road making and sewerage contractors, sanitary engineers, builders, &c. Nominal capital, £1,000.

J. BROOMHEAD & SONS, LTD. (180,542). Registered March 23. 82, Regent-road, Salford, Lancs. Plasterers and decorators. Nominal capital, £6,000.

THAL. BROWN, LTD. (180,564). Registered March 23. 4, Fields-road, Haslingden, Lancaster. Builders and contractors. Nominal capital, £1,500.

MOBBS BROS., LTD. (180,596). Registered March 24. Builders, contractors, &c. Nominal capital, £5,000.

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor." and must reach him not later than Tuesday evening.

***Denotes *accepted*. † Denotes *provisionally accepted*.**
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modifications*.

ASPATRIA.—For alterations to ranges, &c., in houses at Outgang, for the U.D.C. :—

W. Lattimer, Mealsgate	£380

CANTERBURY.—For supplying and erecting three-cell refuse destructor, equipped with patent steam jets, for the T.C. Mr. P. H. Warwick, City Surveyor, Canterbury :—

*Meldrums, Ltd.	£1,395

CARLISLE.—For flagging about 166 super yds. of footway, for the T.C. Mr. Henry C. Marks, City Surveyor and Engineer, Carlisle :—

J. & R. Bell, Carlisle	£106 10 4

CARLISLE.—For painting and other works in four elementary schools, for the E.C. Mr. H. C. Marks, Surveyor and Engineer, Carlisle :—

St. Bede's School—	
*T. B. Mark, Carlisle	£108 9 0
St. Cuthbert's—	
*Thos. Ling, Carlisle	149 10 0
Christ Church—	
*Cameron & Keighley, Carlisle	130 0 0
St. John's—	
*Hill & Stephenson, Carlisle	214 13 7

COVENTRY.—For painting and decorating at ten schools. Mr. F. Horner, Education Department, Council House, Coventry :—

G. Hill, Coventry, Broad-street School	£639 17 0
D. Deacon, Coventry, Red-lane School	489 0 0
D. Deacon, Coventry, Cheylesmore School	451 10 0
W. H. Penn, Coventry, Wheatley-street School	239 11 6
H. B. Shaw & Son, Coventry, Little Heath School	200 0 0
D. Deacon, Coventry, Fredk. Bird School	183 0 0
Harper & Son, Coventry, South-street School	157 0 0
W. H. Jones & Son, Coventry, Spon-street School	119 0 0

CROUCH END.—For external work at the Hornsey Cottage Hospital, Park-road :—

Stevens & Stevens, Hornsey—	
Main buildings	£149 0
Temporary buildings	20 0
Cotterill, Ltd., Crouch End—	
Main buildings	129 0
Temporary buildings	19 10
Stevens & Sons, Highgate—	
Main buildings	120 0
Temporary buildings	17 0
Sydney G. Goulding, Hornsey—	
Main buildings	110 0
Temporary buildings	20 0
Senecal & Co., London—	
Main buildings	97 5
Temporary buildings	11 10

DONCASTER.—Provision and erection of superstructure of war memorial, for the Committee :—

†J. & H. Patteson, Manchester	£1,445

DONCASTER.—For conversion of premises in Copley-road, for the Board of Guardians :—

*Swift Bros. & Haslem	£457

GLOUCESTER.—For redecoration of the Guildhall, for the Corporation. Mr. G. W. A. Carter, City Surveyor, Guildhall, Gloucester :—

Shermer & Jones, Birmingham	£1,140 12 2
J. Taylor & Co., Birmingham	1,023 7 6
Hyett Bros., Gloucester	853 10 0
Burton Barnes, Gloucester	830 0 0
Pickford & Son, Gloucester	817 10 0
A. J. Doré, Bristol	806 10 0
W. T. Nicholls, Ltd., Gloucester	769 0 0
Conway Jones & Co., Ltd., Gloucester	743 0 0
Greenwood & Son, Harlesden	644 10 8
*Harvey, Sons, & Co., Gloucester	622 1 9
Flint Bros., Sheffield	355 0 0

GUILDFORD.—For rebuilding 133, High-street and repairing roof, for the T.C. The Borough Surveyor, Tuns'-gate, Guildford :—

F. H. Billimore, Guildford	£5,365 0 0
Wood & Son, Guildford	4,903 0 0
Bunning & Fitton Adams, Godalming	4,737 0 0
Cook & Son, Crawley	4,670 0 0
Cæsar Bros., Farnham	4,635 0 0
Crosby & Co., Farnham	4,565 0 0
T. Swayne & Son, Guildford	4,535 0 0
Higlett & Hammond, Guildford	4,457 0 0
Tribe & Robinson, Guildford	4,442 0 0
Norris & Co., Sunningdale	4,383 0 0
National Building Guild, Guildford	4,373 0 0
J. S. Seward & Co., Wokingham	4,360 10 0
H. J. & A. Osman, Oxshott	4,231 18 9
W. J. Woolnough, Eastbourne	4,200 0 0
Smith & Sons, Guildford	4,168 0 0
*Stanley Ellis, Guildford	4,108 0 0
†Wm. Daley & Co., London, W. 3	3,305 0 0

†This figure was withdrawn and an amended figure of £3,950 submitted, but was not allowed. The next lowest tender, that of Stanley Ellis, was accepted.

HAVANT.—For construction of Stakes-hill drainage scheme for the U.D.C. :—

*Campbell, Kenyon & Co., Acton	£2,503 10

HEANOR.—For erection of four houses on the Plumptre Terrace site, for the U.D.C. Mr. A. G. Wheeler, Architect to the U.D.C., Eastwood, Nottingham; quantities by Messrs. Baines, Booth & Richardson, Nottingham :—

Short Bros., Codnor	£1,968
T. Wootten, Langley Mill	1,756
H. C. Clarke, Eastwood	1,753
F. Sisson, Langley Mill	1,720
E. Allcock & Sons, Eastwood	1,700
Rowland Bros., Kimberley	1,600
W. Wood, Heanor	1,540
†J. Minkley, Brinsley	1,491

KINGSWEAR.—For boatslip, stage, sea wall, peach house, summer house, &c., for Sir Thomas J. Lennard, J.P. Messrs. Bridgman & Bridgman, architects, Paignton :—

*R. F. Yeo & Sons, Torquay	£4,720

LANCASTER.—For alterations and additions to premises, Penny-street, for Mr. Luke Parkinson. Mr. R. W. Jackson, architect and surveyor, 43, Church-street, Lancaster. Quantities by architect :—

Mason—	
*R. L. Dilworth, Lancaster	£942 14 4
Joiner—	
*W. & I. Peill Lancaster	717 10 0
Plumber—	
*W. Turner, Lancaster	211 10 3
Slater—	
*T. Gardner, Lancaster	357 11 11
Painter—	
*E. Wharton, Lancaster	87 10 6

LISKEARD.—For laying water mains and construction of reservoir for St. Cleer, for the U.D.C Mr. E. C. Higman, architect and surveyor, St. Cleer. Liskeard :—

Dovey & Son, Plymouth (complete)	£2,877 0 0
The Western Construction Co., St. Austell (complete)	1,681 13 4
T. Anyears, Looe (plumbing only)	694 0 0
†Martin & Major, Liskeard (plumbing only)	654 10 0
Brock & Pryor, Liskeard (general contract work only)	992 15 0
†R. H. Rumcalls & Sons, Liskeard (general contractor work)	968 0 0

LLANWRTYD WELLS.—For erection of residence, for Mrs. E. G. Thomas. Mr. A. Swash, architect, 8, Montpellier Park, Llandrindod Wells :—

Charles Thomas & Co., Llandilo	£1,748
R. J. Jones, Llangammarch	1,543
Beaven, Jones & Lewis, Ammanford	1,290
*J. R. Hopton & Son, Llandrindod Wells	1,185

LONDON.—For reconstruction of business premises, 63, Tottenham Court-road, for Messrs. Lennards, Ltd. Messrs. Bridgman & Bridgman, architects, Paignton :—

H. A. Murphy & Co., London	£5,497
H. V. Clogg, London	5,337
Higgs & Hill, Ltd., London	5,297
*J. Carmichael, Ltd., London	5,000

LUTON.—For erection of bandstand at Luton Hoo Memorial Park, for the T.C. Mr. J. W. Tomlinson, Borough Engineer, Luton. Quantities by Borough Engineer :—

National Building Guild, Chelmsford	£1,423
C. H. White, Luton	1,288
C. Jeyes, Luton	1,160
G. W. Buckingham, Luton	1,120
E. Pryer, Luton	1,092
Lacey and Sons, Luton	1,060
Wood & Sons, Luton	1,000
F. J. W. Janes, Luton	983
Tomkins & Son, Luton	920
J. T. Garrett, Luton	900
*Arthur Cole, Ltd., Luton	899
Borough Engineer's estimate	935

NEWARK.—For construction of intercepting sewer. The Borough Surveyor, Newark :—

Hussey & Edgar, Birmingham	£39,144 1 9
Crawford, Bros., Winscombe	36,936 0 0
Muirhead, Macdonald, Wilson & Co., Ltd., London	35,041 12 0
H. C. Pullars & Co., Manchester	34,959 11 0
Thos. Bow, Nottingham	34,900 0 0
Chas. Wade, Luddenden Foot, Yorks	34,795 0 0
Adam Edwards & Sons, Warsop	33,074 0 0
J. H. Shardlow, Leicester	32,599 0 0
Abraham Graham & Sons, Huddersfield	30,600 0 0
H. H. Barry, Radcliffe-on-Trent	28,900 0 0
Geo. Riley, Halifax	27,329 3 0
Edwards & Co., Ltd., Doncaster	26,592 6 0
T. W. Pedrette, Enfield	26,128 5 8
C. W. Buchan & Co., Southwick	25,443 0 0
A. H. Price & Co., Nottingham	25,347 9 9
Unit Construction Co., Liverpool	24,362 10 6
H. E. Buckley, Bradford	21,780 0 0
*W. Moss & Sons, Ltd., Loughborough	21,428 0 0

PAIGNTON.—For conversion of stables into a garage, for Messrs. Chard Bros. Messrs. Bridgman & Bridgman, architects, Paignton :—

J. Webber, Paignton	£245 10
R. Harris & Son, Paignton	253 0
A. Rowe, Paignton	231 0
C. & R. E. Drew, Paignton	226 10
*S. Batten, Paignton	184 0

PAIGNTON.—For bungalow residence, for Miss Capon and Miss Harding. Messrs. Bridgman & Bridgman, architects, Paignton :—

*J. Webber, Paignton £1,435

SHEFFIELD.—Repairs to spouting, &c., at Ellin-street sub-station, for the T.C. :—

*Waddilove & Co..... £155 8 4

SHEFFIELD.—Construction of Wadsley Service reservoir, for the T.C. :—

*Geo. Longden & Son, Sheffield.... £37,417

SHEFFIELD.—For various works, for the Electricity Department of the T.C. :—

Gwynnes, Ltd., London—Sludge pump	£160	2	6
Staveley Coal & Iron Co., Ltd.—Cast-iron pipes for sludge pump	137	0	6
A. Waddington & Sons—Erection of sludge pump house at Blackburn Meadows Power Station	318	0	0
M. J. Gleeson—Erection of a transformer sub-station in Standon-road, Wincobank..	361	14	0

STOCKTON-ON-TEES.—For construction of an 18 in. and 15 in. reinforced concrete pipe sewer, 665 lin. yds., for the T.C. Mr. J. P. Wakeford, Victoria Buildings, Stockton-on-Tees :—

*T. A. Davies & Co., South Shields £2,993 11 8

SWANSEA.—For alterations and additions to business premises, for Messrs. Lennards, Ltd. Messrs. Bridgman & Bridgman, architects, Paignton :—

J. & T. Weaver, Swansea £1,130
T. & G. Spragg, Swansea 1,110
Lloyd Bros., Swansea 998
*D. Jenkins, Ltd., Swansea 970

SWANSEA.—For erection of a war memorial cenotaph and court of memory, on the Promenade, for the War Memorial Committee. Mr. E. E. Morgan, A.R.I.B.A., Borough Architect, Swansea. Quantities by Mr. F. A. Broad, Borough Quantity Surveyor, Swansea :—

	No. 1.	No. 2.
J. & F. Weaver, Swansea	£5,280	£3,250
T. Richards, Swansea	5,230	3,300
Roberts & Nurse, Swansea	5,100	3,000
Lloyd Bros., Swansea	4,926	2,990
W. J. Williams, Swansea	4,595	2,857
*Griffith Davies & Co., Swansea....	4,490	2,790
Thomas Bros., Pontardawe.....	4,295	2,410

No 1, with cenotaph 30 ft. high. No. 2, alternative, with cenotaph 20 ft. high and smaller court.

TORQUAY.—For loose boxes and van shed, for the Torquay Co-operative Society, Ltd. Messrs. Bridgman & Bridgman, architects, Paignton :—

S. C. Eales & Son, Torquay £813
Brock, Torquay 799
R. F. Yeo & Sons, Torquay 765
T. Vanstone & Son, Torquay 735
Narracott, Torquay 680
*The National Building Guild, Ltd., Torquay 601

TREDEGAR.—For renovations to Castle-street Congregational Church. Mr. L. Jones, architect, Ebbw Vale :—

Geo. Brown, Ebbw Vale £875
Batten & Jones, Ebbw Vale 820
Dickenson & Sons, Tredegar 798
Rees Edwards, Tredegar 730
H. Elkington, Blackwood 630
*G. Haines & Son, Cardiff..... 550

WALKER (NORTHUMBERLAND).—For erection of a block of 36 flats in Watson-street, for the Newcastle City Council. Mr. R. G. Roberts, Housing Architect, 18, Cloth-market, Newcastle :—

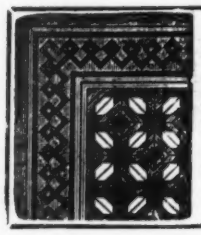
Lough Bros., Consett	£15,987	0	0
John Craven, Newcastle	14,750	0	0
Thos. Curry & Son, Newcastle	14,500	0	0
S. Fenwick & Co., Newcastle ..	14,181	17	7
J. J. Robson, Blyth.....	13,780	0	0
Geo. G. Carr, Newcastle	13,227	7	6
T. E. Ridley, Gosforth	13,170	5	2
Bolam, Simpson & Bolam, Birtley	12,884	0	0
J. W. Braithwaite & Co., Newcastle	12,575	0	0
Alex. Anderson, Newcastle ..	12,500	0	0
E. Archbold, Newcastle	12,266	12	0
Stephen Buy, Newcastle	12,230	5	2
William Thompson, Newcastle	11,950	0	0
Stanley Miller, Newcastle	11,929	8	4
Henry Wilson, Washington ..	11,900	0	0
E. R. Davidson & Son, Blaydon on-Tyne.....	11,885	0	0
National Building Guild, Newcastle	11,389	14	0
D. G. Somerville & Co., Ltd., London	10,905	0	0
W. G. Armstrong & Co., Blaydon-on-Tyne.....	10,898	0	0
Geo. Tiffin, Newcastle	10,850	0	0
J. S. Hetherington, Newcastle	10,836	0	0
†H. Kelly (Con.), Ltd., Newcastle	8,900	0	0

WHITLEY AND MONKSEATON.—Widening of the promenade, for the U.D.C. :—

*R. Fisher, North Shields..... £39,163

A New J.P.

The name of Mr. Llewelyn H. Nicholas, senior partner in the firm of Messrs. John Nicholas & Sons, builders and contractors and timber merchants, Port Talbot, is included in a list of new J.P.'s, for the borough of Port Talbot. The appointment was officially announced on Saturday. Mr. Nicholas is ex-President of the local Master Builders' Association.



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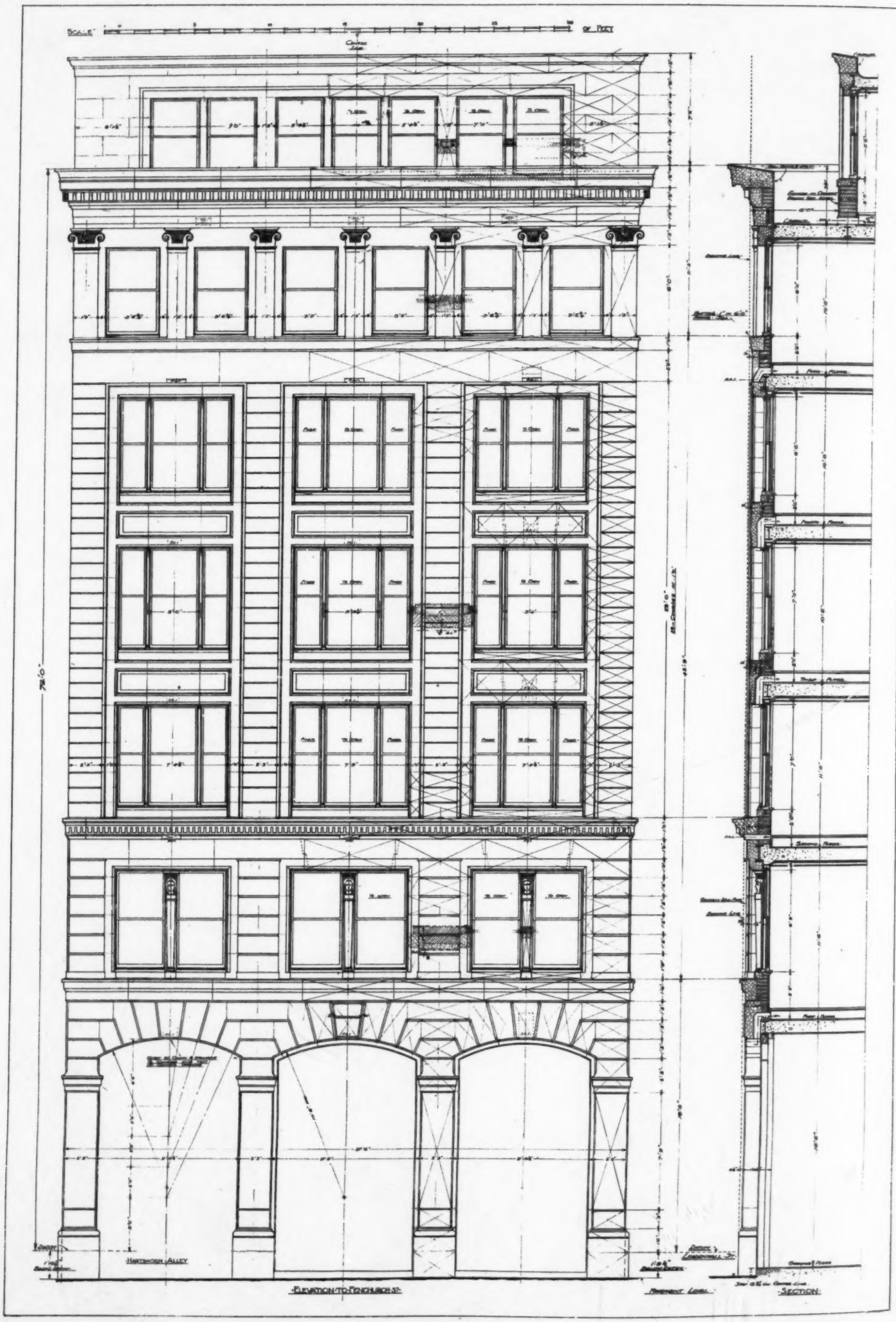
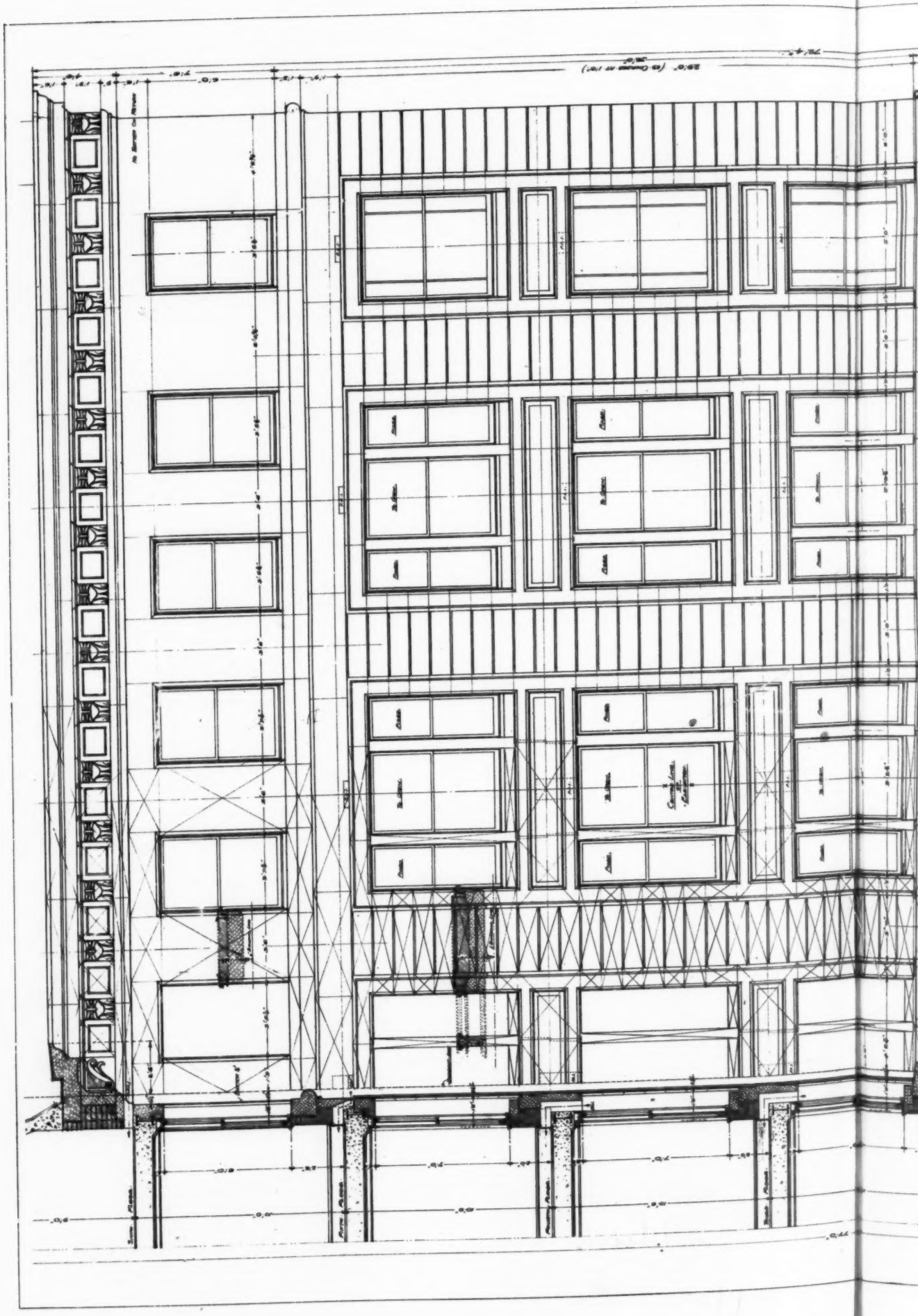
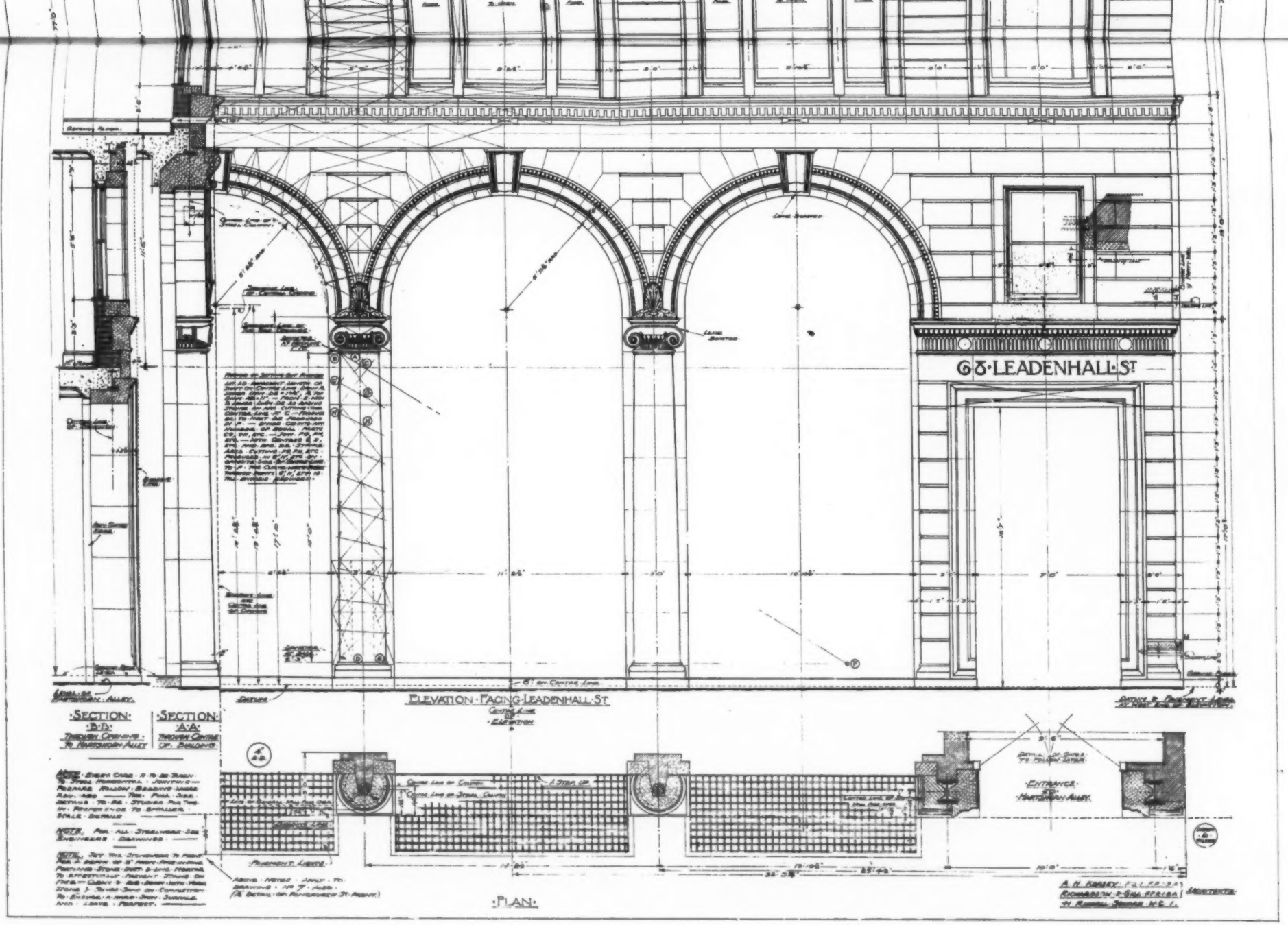


PREMISES, 65-68, LEADENHALL STREET, & 98, FENCHURCH STREET, E.C.

MESSRS. A. H. KERSEY, F.R.I.B.A., & RICHARDSON & GILL, FF.R.I.B.A., ARCHITECTS.





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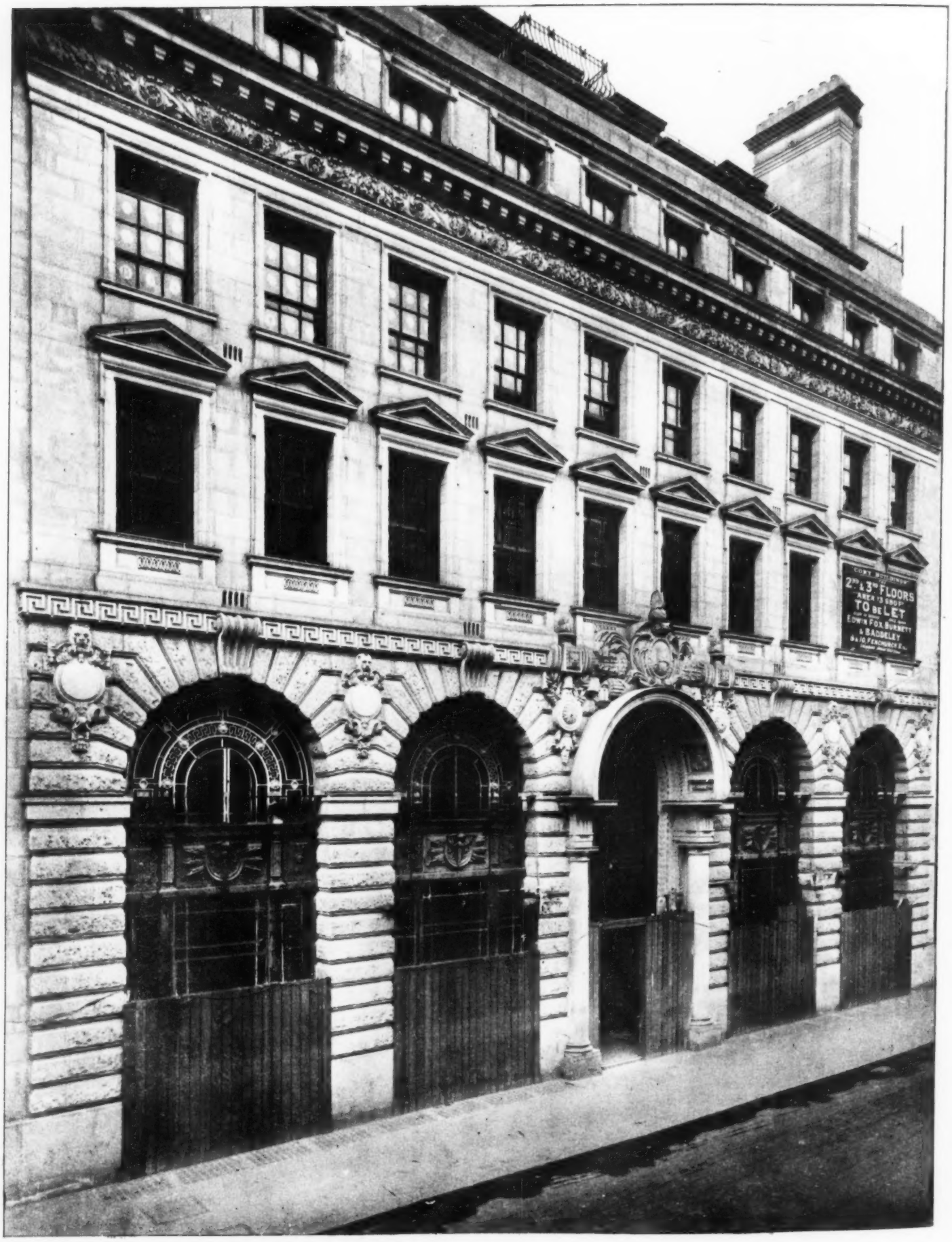
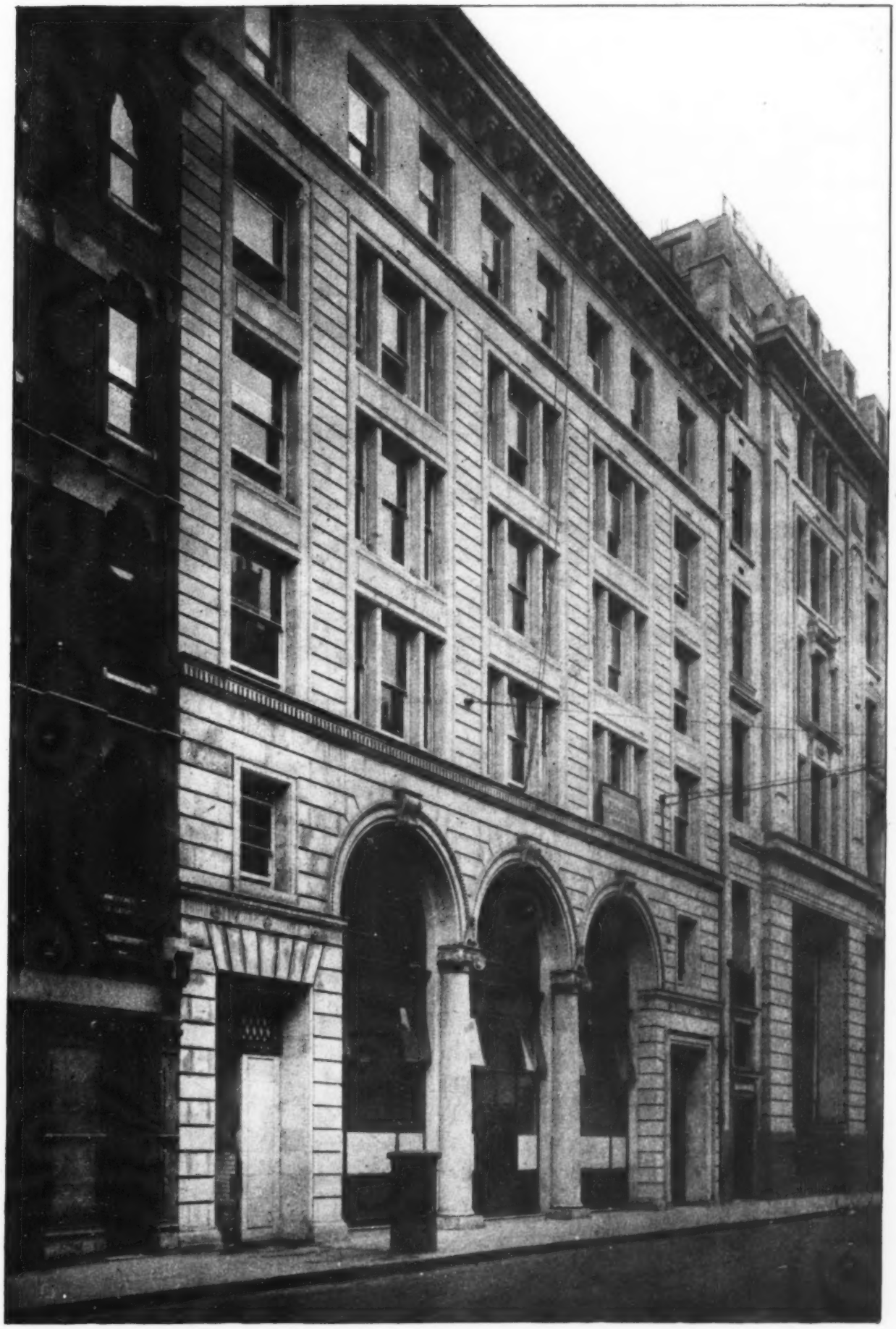


CORY BUILDINGS, FENCHURCH STREET, E.C. THE LATE EDGAR STONES, ARCHITECT.

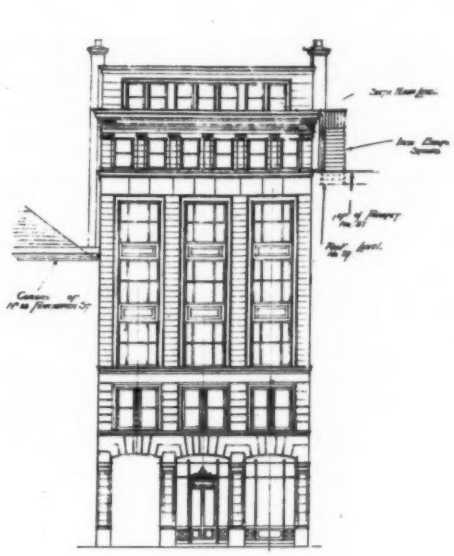
MR. E. DOUGLAS SELWAY, A.R.I.B.A., & MR. W. GILLBEE SCOTT, F.R.I.B.A., ARCHITECTS FOR COMPLETION.



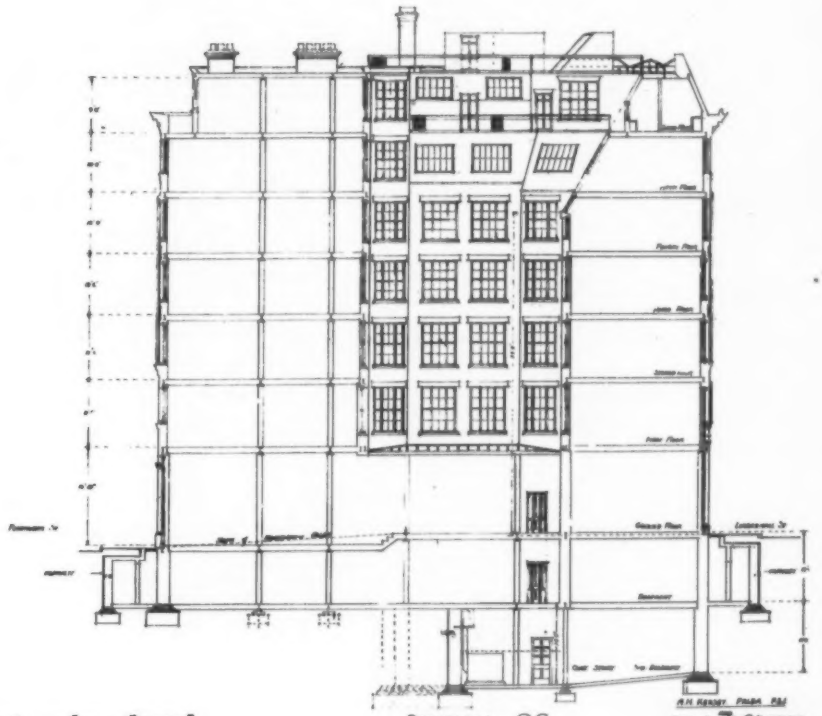
PREMISES, 65-68, LEADENHALL STREET, & 98, FENCHURCH STREET, E.C.

MESSRS. A. H. KERSEY, F.R.I.B.A., & RICHARDSON & GILL, FF.R.I.B.A., ARCHITECTS.

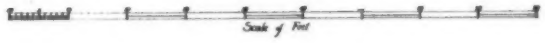
Nos 65 to 68 Leadenhall Street and 98 Fenchurch Street E C

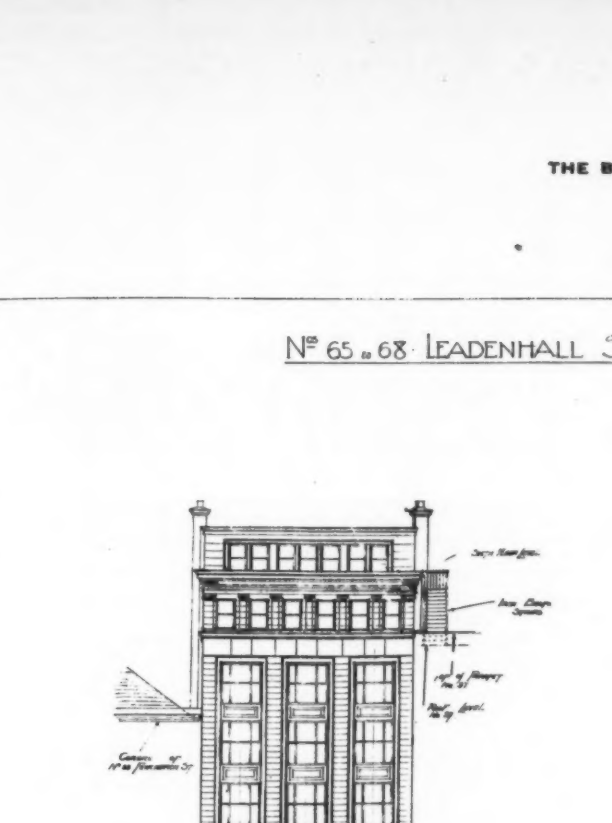


Elevation to Fenchurch Street



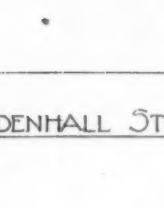
Section C C



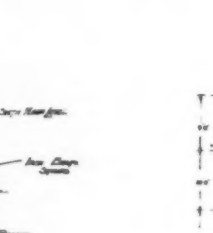


Ground Floor Plan, Present Site.

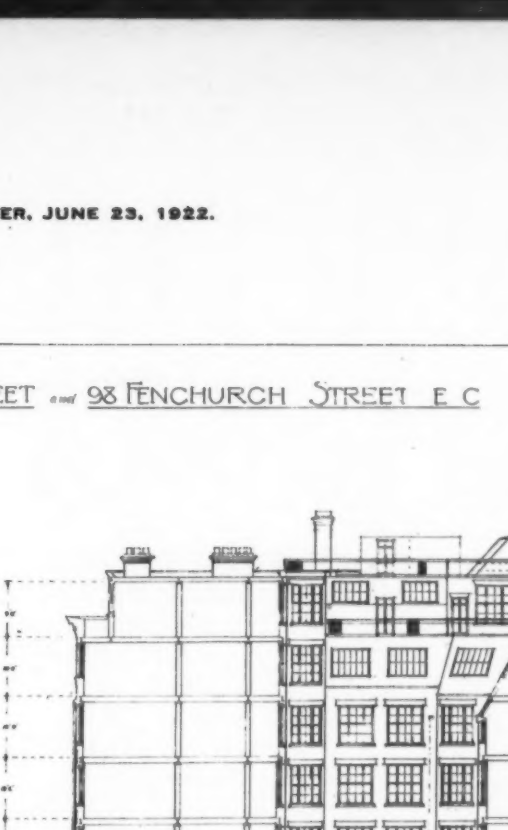
Section A A



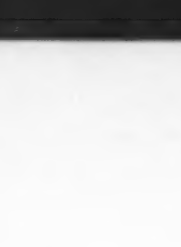
Section B B



Section C C



Proposed Ground Floor Plan.



Section A-A

Section B-B

Section C-C

PREMISES, 65-68, LEADENHALL STREET, & 98, FENCHURCH STREET, E.C.

MESSRS. A. H. KERSEY, F.R.I.B.A., & RICHARDSON & GILL, FF.R.I.B.A., ARCHITECTS.